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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	090611-0422643
First Inventor	Chris WEIDER
Title	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS
Express Mail Label No.	

APPLICATION ELEMENTS

See *MPEP chapter 600 concerning utility patent application contents.*

1. ☐ **Fee Transmittal Form** (e.g., PTO/SB/17)
2. ☒ **Applicant claims small entity status.** See 37 CFR 1.27.
3. ☒ **Specification** [*Total Pages* 90]
   Both the claims and abstract must start on a new page
   (For information on the preferred arrangement, see MPEP 608.01(a))
4. ☒ **Drawing(s)** (35 U.S. C. *113)* [*Total Sheets* 8]
5. **Oath or Declaration** [*Total Sheets* _____]
   a. ☐ Newly executed (original or copy)
   b. ☐ A copy from a prior application (37 CFR 1.63(d))
   (for continuation/divisional with Box 18 completed)
   i. ☐ DELETION OF INVENTOR(s)
   Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☒ **Application Data Sheet.** See 37 CFR 1.76
7. ☐ **CD-ROM or CD-R** in duplicate, large table or Computer Program *(Appendix)*
   ☐ Landscape Table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission**
   (if applicable, items a. - c. are required)
   a. ☐ Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ Paper
   c. ☐ Statements verifying identity of above copies

ADDRESS TO: **Commissioner for Patents**
P.O. Box 1450
Alexandria VA 22313-1450

ACCOMPANYING APPLICATION PARTS

9. ☐ **Assignment Papers** (cover sheet & document(s))
   Name of Assignee _____
10. ☐ **37 CFR 3.73(b) Statement** *(when there is an assignee)* ☐ **Power of Attorney**
11. ☐ **English Translation Document** *(if applicable)*
12. ☐ **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
    ☐ Copies of citations attached
13. ☒ **Preliminary Amendment**
14. ☐ **Return Receipt Postcard** (MPEP 503)
    (Should be specifically itemized)
15. ☐ **Certified Copy of Priority Document(s)**
    (if foreign priority is claimed)
16. ☐ **Nonpublication Request** under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
17. ☐ Other: _____

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:*

☒ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: 13/488,299

Prior application information: *Examiner* YEN, ERIC L. *Art Unit:* 2658

19. CORRESPONDENCE ADDRESS

☒ The address associated with Customer Number 00909 ***OR*** ☐ Correspondence address below

Name					
Address					
City		State		Zip Code	
Country		Telephone		Email	

Signature	/Ngai B. Zhang/	Date	May 20, 2013	
Name (Print/Type)	Ngai B. Zhang	Registration No. (Attorney/Agent)	65,473	

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Chris Weider, *et al*.

Application No.: ***New***

Filed: May 20, 2013

For: MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPLICATION DATA SHEET
37 CFR § 1.76

BIBLIOGRAPHIC DATA

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Postal Code: 98033 Country: United States of America

3. Correspondence information

Correspondence for this application should be addressed as follows:

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4. Application information

Title of the Invention: MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS
Attorney Docket Number: 090611-0422643
Total number of drawing sheets: 8
Type of application: Utility
Small Entity Status Claimed [X]

This application is to be published.

Secrecy order under § 5.2:

This application does not disclose subject matter of an application which is under a secrecy order pursuant to § 5.2.

5. Representative information.

The following have a power of attorney or authorization of agent in this application:

Customer No.: 00909

6. Domestic Priority information.

Domestic priority for this application is claimed as follows:

35 U.S.C. §§ 120 and 121:
Application No.: 13/488,299
Filed: June 4, 2012
Status: PENDING
Relationship: CONTINUATION

Application No.: 13/084,197
Filed: April 11, 2011
Status: PATENTED
Relationship: DIVISION

Application No.: 11/212,693
Filed: August 29, 2005
Status: PATENTED
Relationship: CONTINUATION

7. Assignee information

The assignee of this application is:

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Extent of interest of assignee in application: Entire right, title and interest.

Date: May 20, 2013

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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE PATENT APPLICATION OF:	Chris Weider *et al.*
SERIAL NO.:	*not yet assigned*
FILING DATE:	May 20, 2013
ATTORNEY DOCKET NO.:	090611-0422643
CONFIRMATION NO.:	*not yet assigned*
EXAMINER:	*not yet assigned*
ART UNIT:	*not yet assigned*
FOR:	Mobile Systems and Methods of Supporting Natural Language Human-Machine Interactions

PRELIMINARY AMENDMENT ACCOMPANYING FILING OF APPLICATION

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Prior to initial examination on the merits, please amend the present application filed herewith as follows:

Amendments to the Claims begin on page **2** of this paper.

Remarks begin on page **3** of this paper.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a), and any fees required therefore (including fees for net addition of claims) are hereby authorized to be charged to Deposit Account No. 033975 (**Ref. No. 090611-0422643**).

This listing of claims will replace all prior versions and listings of claims in the Application.

LISTING OF CLAIMS:

1. **(Original)** A mobile device for processing speech and non-speech communications, comprising:

an identification module that identifies a user that communicates with the mobile device;

a matching module that matches the identified user to one or more profiles;

a transcription module that transcribes the speech and the non-speech communications to create a speech-based textual message and a non-speech-based textual message, wherein the transcription module accesses the one or more profiles;

a merging module that merges the speech-based textual message and the non-speech-based textual message to generate a query;

a search module that searches the query for text combinations;

a comparison module that compares the text combinations to entries in a context description grammar;

a plurality of domain agents that are associated with the context description grammar;

a scoring module that provides relevance scores based on results from the comparison module;

a domain agent selector that selects domain agents based on results from the scoring module; and

a response generating module that communicates with the selected domain agents to obtain content that is gathered by the selected domain agents and that generates a response from the content, wherein the content is arranged in a selected order based on results from the scoring module.

2-49. **(Canceled)**

REMARKS

By this Preliminary Amendment, claims 2-49 have been canceled without prejudice or disclaimer. Therefore, claim 1 is pending.

Prompt examination and allowance of all the claims pending in the application are respectfully solicited. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

Date: **May 20, 2013**

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MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

FIELD OF THE INVENTION

[001] The invention provides mobile devices having a speech interface and/or a combination of a speech interface and a non-speech interface to enable natural language human-machine interactions. More specifically, the invention enables mobile users to submit natural language speech and/or non-speech questions or commands in a wide range of domains. The mobile device is configured to present responses in a natural manner.

BACKGROUND OF THE INVENTION

[002] Telematic systems are systems that bring human-computer interfaces to mobile environments. Conventional computer interfaces use some combination of keyboards, keypads, point and click techniques and touch screen displays. These conventional interface techniques are generally not suitable for a mobile environments, due at least in part to the speed of interaction and the inherent danger and distraction. Therefore, speech interfaces are being adopted in many telematic applications.

[003] However, creating a natural language speech interface that is suitable for use in the mobile environment has proved difficult. A general-purpose telematics system should accommodate commands and requests from a wide range of domains and from many users with diverse preferences and needs. Further, multiple mobile users may want

to use such systems, often simultaneously. Finally, most mobile environments are relatively noisy, making speech recognition inherently difficult.

[004] Retrieval of both local and network hosted online information and processing of commands in a natural manner remains a difficult problem in any environment, especially a mobile environment. Cognitive research on human interaction shows that verbal communication, such as a person asking a question or giving a command, typically relies heavily on context and domain knowledge of the target person. By contrast, machine-based requests (a request may be a question, a command, and/or other types of communications) may be highly structured and may not be inherently natural to the human user. Thus, verbal communications and machine processing of requests that are extracted from the verbal communications may be fundamentally incompatible. Yet the ability to allow a person to make natural language speech-based requests remains a desirable goal.

[005] Research has been performed on multiple fields of natural language processing and speech recognition. Speech recognition has steadily improved in accuracy and today is successfully used in a wide range of applications. Natural language processing has previously been applied to the parsing of speech queries. Yet, a limited number of systems have been developed that provide a complete environment for users to make natural language speech requests and/or commands and receive natural sounding responses in a mobile environment. There remain a number of significant barriers to creation of a complete natural language verbal and/or textual-based query and response environment.

[006] The fact that most natural language requests and commands are incomplete in their definition is a significant barrier to natural language query-response interaction. Further, some questions can only be interpreted in the context of previous questions, knowledge of the domain, or the user's history of interests and preferences. Thus, some natural language questions and commands may not be easily transformed to machine processable form. Compounding this problem, many natural language questions may be ambiguous or subjective. In these cases, the formation of a machine processable query and returning of a natural language response is difficult at best.

[007] Even once a question is asked, parsed and interpreted, machine processable requests and commands must be formulated. Depending on the nature of the question, there may not be a simple set of requests that return an adequate response. Several requests may need to be initiated and even these requests may need to be chained or concatenated to achieve a complete result. Further, no single available source may include the entire set of results required. Thus, multiple requests, perhaps with several parts, may need to be made to multiple data sources, which can be located both locally or remotely. Not all of these sources and requests may return useful results or any results at all.

[008] In a mobile environment, the use of wireless communications may further reduce the chances that requests will be complete or that successful results will be returned. Useful results that are returned are often embedded in other information and may need to be extracted therefrom. For example, a few key words or numbers often need to be "scraped" from a larger amount of other information in a text string, table, list, page, or other information. At the same time, other extraneous information such as graphics or

pictures may need to be removed to process the response in speech. In any case, the multiple results should be evaluated and combined to form the best possible answer, even in the case where some requests do not return useful results or fail entirely. In cases where the question is ambiguous or the result inherently subjective, determining the best result to present is a complex process. Finally, to maintain a natural interaction, responses should be returned rapidly to the user. Managing and evaluating complex and uncertain requests, while maintaining real-time performance, is a significant challenge.

[009] These and other drawbacks exist in existing systems.

SUMMARY OF THE INVENTION

[010] The invention overcomes these and other drawbacks of prior telematic systems.

[011] According to one aspect of the invention, speech-based and non-speech-based systems are provided that act on commands and retrieve information. The invention uses context, prior information, domain knowledge, and user specific profile data to achieve a natural environment for users that submit requests and/or commands in multiple domains. At each step in the process, accommodation may be made for full or partial failure and graceful recovery. The robustness to partial failure may be achieved through the use of probabilistic and fuzzy reasoning at several stages of the process. This robustness to partial failure promotes the feeling of a natural response to questions and commands.

[012] According to another aspect of the invention, the interactive natural language system (herein "the system") may be incorporated into mobile devices or may be connected to the mobile device via a wired or wireless connection. The mobile device may interface with computers or other electronic control systems through wired or

wireless links. The mobile device may also operate independently of a mobile structure and may be used to remotely control devices through a wireless local area connection, a wide area wireless connection or through other communication links.

[013] According to one aspect of the invention, software may be installed onto the mobile device that includes an input module that captures the user input; a parser that parses the input, a text to speech engine module for converting text to speech; a network interface for enabling the device to interface with one or more networks; a non-speech interface module, an event manager for managing events and/or other modules. In some embodiments, the event manager may be in communication with a context description grammar, a user profile module that enables user profiles to be created, modified and/or accessed, a personality module that enables various personalities to be created and/or used, an agent module, an update manager and one or more databases. It will be understood that this software may be distributed in any way between a mobile device, a computer attached to a mobile structure, a desktop computer or a server without altering the function, features, scope, or intent of the invention.

[014] According to one aspect of the invention, the system may include a speech unit interface device that receives spoken natural language requests, commands and/or other utterances from users, and a computer device or system that receives input from the speech unit and processes the input and responds to the user with a natural language speech response.

[015] According to another aspect of the invention, the system may be interfaced by wired or wireless connections to one or more other systems. The other systems may themselves be distributed between electronic controls or computers that are attached to a

mobile structure or are located external to the mobile structure. The other systems may include, electronic control systems, entertainment devices, navigation equipment, measurement equipment or sensors, or other systems. External systems may also be provided with features that include payment systems, emergency assistance networks, remote ordering systems, automated or attended customer service functions, or other features.

[016] According to another aspect of the invention, the system may be deployed in a network of devices that share a common base of agents, data, information, user profiles, histories or other components. Each user may interact with, and receive, the same services and applications at any location equipped with the mobile device on the network. For example, multiple mobile devices may be placed at different locations throughout a home, place of business, vehicle or other location. In such a case, the system can use the location of the particular device addressed by the user as part of the context for the questions asked.

[017] According to one embodiment of the invention, processing may be performed at the mobile devices. The commands may be processed on-board to enable the mobile devices to control themselves and/or to control other mobile devices, fixed computers, mobile telephones, and other devices. Additionally, mobile devices may track context.

[018] According to one embodiment of the invention, infrastructure may be provided to maintain context information during multimodal interactions, such as speech and/or non-speech interactions. According to one exemplary embodiment of the invention, context information may be maintained in a multimodal environment by providing communication channels between mobile device, or multimodal devices, and the system.

The communication channels allow the system to receive multimodal input such as text-based commands and questions and/or voice-based commands and questions. According to another embodiment of the invention, the multimodal input may include a string of text, such as keywords, that are received as commands or questions. According to yet another embodiment of the invention, the system may synchronize the context between the mobile devices and the speech-based units. In order to send a response to the corresponding mobile device, the system may track the source and send the response to the corresponding speech interface or the non-speech interface.

[019] According to an alternative embodiment of the invention, context information may be maintained using a context manager that may be centrally positioned to receive input from multiple mobile devices and to provide output to multiple mobile devices. According to one embodiment, the mobile devices that communicate with the context manager may register through a registration module and may subscribe to one or more events. According to another embodiment of the invention, the context manager may receive input in Context XML form, for example. The other registered mobile devices may be informed of context changes through a context tracking module to enable synchronizing of context across the registered modules. According to one embodiment of the invention, registered modules may be added or removed from the system. The registered modules may include dynamic link libraries (DLLs), or other information sources, that are specific to multimodal devices.

[020] According to yet another alternative embodiment of the invention, context information may be determined from a command or request that is presented in a textual format and/or a command or request that is presented as an utterance and processed using

a multi-pass automatic speech recognition module that transcribes the utterance to a text message. The command or request may be compared against a context description grammar to identify a match. Any active grammars in the context description grammar may be scored against the command or request and a best match may be sent to a response generator module. Agents may be associated with corresponding response generator modules and may retrieve the requested information for generation of a response. The agents may update a context stack to enable follow-up requests.

[021] According to another embodiment of the invention, mobile devices may be configured to allow verbal annotations of objects stored thereon. Mobile devices may transcribe the verbal annotation to text and store the textual annotation with the object. Alternatively, mobile devices may be configured to enable users to manually input textual descriptions that are stored along with the objects. According to one embodiment of the invention, the textual annotations and/or textual descriptions may be classified and searched. In an alternative embodiment, mobile devices may classify and search the verbal annotations rather than textual annotations. However, classifying and searching verbal annotations may be considerably more difficult than classifying and searching textual annotations and/or textual descriptions.

[022] According to one embodiment of the invention, the textual annotations and textual descriptions may be communicated using a short message service on the mobile telephone or other device. Short message service is a text message service that enables sending and receiving of short textual messages. The textual messages may be stored at data centers for forwarding to intended recipients. Other configurations may be used.

[023] According to another aspect of the invention, domain specific behavior and information may be organized into data managers. Data managers are autonomous executables that receive, process and respond to user questions, queries and commands. The data managers provide complete, convenient and re-distributable packages or modules of functionality that are typically directed to a specific domain of applications. Data managers may be complete packages of executable code, scripts, links to information, and other forms of communication data that provide a specific package of functionality, usually in a specific domain. In other words, data managers may include components for extending the functionality to a new domain. Further, data managers and their associated data may be updated remotely over a network as new behavior is added or new information becomes available. Data managers may use system resources and the services of other, typically more specialized, data managers. Data managers may be distributed and redistributed in a number of ways including on removable storage media, transfer over networks or attached to emails and other messages. An update manager may be used to add new data managers to the system or update existing data managers.

[024] In order to enhance the natural query and response environment, the system may format results to increase understandability to users. Formatting and presentation of results may be based on the context of the questions, the contents of the response being presented, the history of the interaction with the user, the user's preferences and interests and the nature of the domain. By contrast, rigid, highly formatted, or structured presentation of results may be deemed unnatural by many users.

[025] According to another embodiment of the invention, the system may simulate some aspects of a human "personality". In some cases, the presentation of the response

and the terms that are used to provide the response may be randomized to avoid the appearance of rigidly formatted or mechanical responses. The use of other simulated personality characteristics is also desirable. For example, a response that may be upsetting to the user may be presented in a sympathetic manner. Furthermore, results of requests may be long text strings, lists, tables or other lengthy sets of data. Natural presentation of this type of information presents particular challenges because simply reading the long response is generally not preferred. Instead, the system may parse important sections from the response and may initially provide only reports. Determining what parts of a long response are presented may be based on the context of the questions, the contents of the response being presented, the history of the interaction with the user, the user's preferences and interests and the nature of the domain. At the same time, the system may give the user interactive control over what information to present and how much information to present, to stop the response all together, or to take other actions.

[026] The invention may be applied as a user interface to telematics systems in a wide variety of environments. These environments may include, but are not limited to, the following: 1) personal automobiles, rented automobiles, or fleet automobiles; 2) motorcycles, scooters, and other two wheeled or open-air vehicles; 3)commercial long-haul and short haul trucks; 4) delivery service vehicles; 5) fleet service vehicles; 6) industrial vehicles; 7) agricultural and construction machinery; 8) water-borne vehicles; 9) aircraft; and, 10) specialized military, law enforcement and emergency vehicles.

[027] According to another aspect of the invention, the system may process and respond to questions, requests and/or commands. Keywords or context may be used to determine whether the received utterance and/or textual message includes a request or command.

For example, utterances may include aspects of questions, requests and/or commands. For example, a user may utter "tune in my favorite radio station." A request is processed to determine the name, the channel, and time for the users favorite radio station. If the programming on that station is of a type the user generally does not listen to, the system can suggest using an alterative option, such as listening to a CD more likely to please the user. A command must be executed to set a tune the radio station.

[028] The invention can be used for generalized local or network information query, retrieval and presentation in a mobile environment. For each user utterance, including a question or query or set of questions or queries, the system may perform multiple steps possibly including: 1) capturing the user's question or query through speech recognition operating in a variety of real-world environments; 2) parsing and interpreting the question or query; 3) determining the domain of expertise required and the context to invoke the proper resources, including agents; 4) formulating one or more queries to one or more local and/or network data sources or sending appropriate commands to local or remote devices or the system itself; 5) performing required formatting, variable substitutions and transformations to modify the queries to a form most likely to yield desired results from the available sources; 6) executing the multiple queries or commands in an asynchronous manner and dealing gracefully with failures; 7) extracting or scraping the desired information from the one or more results, which may be returned in any one of a number of different formats; 8) evaluating and interpreting the results, including processing of errors, gathered and combine them into a single best result judged to be "best" even if the results are ambiguous, incomplete, or conflicting; 9) performing required formatting, variable substitutions and transformations to modify the results to a form most easily

understood by the user; 10) presenting the compound result, through a text to speech engine or multimodal interface, to the user in a useful and/or expected manner; 11) optionally, providing a response to users indicating the success or failure of the command, and possibly including state information; or other steps.

[029] The above steps may be performed with knowledge of the domain of expertise, the context for the question or command, domain specific information, the history of the user's interactions, user preferences, available information sources or commands, and responses obtained from the sources.

[030] Probabilistic or fuzzy set decision and matching methods may be applied to deal with inconsistent, ambiguous, conflicting and incomplete information or responses. In addition, asynchronous queries may be used to provide rapid and graceful failure of requests or commands that allow the system to robustly return results quickly and in a manner that seems natural to the user.

[031] Many everyday questions are inherently subjective and result in answers that are a matter of opinion or consensus, as much as fact. Such questions are often ad hoc in their nature, as well. The system, according to another aspect of the invention, may use adaptive, probabilistic, and fuzzy set decision and matching methods to identify the subjective nature of the question and to evaluate a range of possible answers, wherein one or more answers may be selected that most accurately represent the type of result desired by the user.

[032] The context and expected results from a particular question may be highly dependent on the individual asking the question. Therefore, the system may create, store and use personal profile information for each user. Information in the profile may be

added and updated automatically as the user uses the system or may be manually added or updated by the user or by others. Domain specific agents may collect, store and use specific profile information, as may be required for optimal operations. Users may create commands for regularly used reports, automatically generated alerts, and other requests and for the formatting and presentation of results. The system may use profile data in interpreting questions, formulating requests, interpreting request results and presenting answers to the user. Examples of information in a user profile includes, history of questions asked, session histories, formatting and presentation preferences, special word spelling, terms of interest, special data sources of interest, age, sex, education, location or address, place of business, type of business, investments, hobbies, sports interests, news interests and other profile data.

[033] According to one aspect of the invention, the system may attempt to provide rapid responses in order to provide a natural question and response environment. The rapid responses may be provided without obtaining additional information. The system may determine agent composition, context and/or domain for a user's question or command, for example, by using a real-time scoring system or other technique. Based on this determination, the system may trigger one or more agents to respond to the user's question or command. The agents may make one or more requests and rapidly return a formatted response. Thus, users may receive direct responses to a set of questions, each with a different response or context. In some cases, the available information, including the request results, may not adequately answer the questions presented. In such situations, the user may be asked one or more follow-up questions to resolve the ambiguity. Additional requests may then be made before an adequate response is

provided. In these cases, the system may use context information, user profile information and/or domain specific information to minimize the interaction with the user required to deliver a response.

[034] If the confidence level of the domain or context score is not high enough to ensure a reliable response, the system may request that the user verify that the question or command is correctly understood. In general, the question may be phrased to indicate the context of the question including all criteria or parameters. If the user confirms that the question is correct, the system may proceed to produce a response. Otherwise, either the user can rephrase the original question, perhaps adding additional information to remove ambiguity, or the system may ask one or more questions to attempt to resolve the ambiguity or other actions may taken.

[035] According to one aspect of the invention, the system may accept any natural language question or command and, as a result, may be subject to ambiguous requests. To assist users in formulating concise questions and commands, the system may support a voice query language. The language may help users clearly specify the keywords or contexts of the question or command along with the parameters or criteria. The system may provide built in training capabilities to help the user learn the best methods to formulate their questions and commands.

[036] In order to make the responses to user's questions and commands seem more natural, the system may employ one or more dynamically invokeable personalities and/or emotional models. Personalities and emotional models have specific characteristics that simulate the behavioral characteristics of real humans. Examples of these characteristics include, sympathy, irritation, and helpfulness and associated emotions. The personality

also randomizes aspects of responses, just as a real human would do. This behavior includes randomization of terms used and the order of presentation of information. Characteristics of the personality and/or emotions are invoked using probabilistic or fuzzy set decision and matching methods and using criteria, including the context for the question, the history of the user's interaction, user preferences, information sources available, responses obtained from the sources.

[037] According to another aspect of the invention, special procedures may be employed to present information in the form of long text strings, tables, lists or other long response sets. Simply presenting a long set of information in an ordered manner may not be considered natural or what most users have in mind. The system may use probabilistic or fuzzy set matching methods to extract relevant information and present these subsets first. Further the system may provide commands allowing users to skip through the list, find keywords or key information in the list or stop processing the list altogether.

[038] According to one embodiment of the invention, the system may support multiple users that access the system at different times. According to another embodiment of the invention, the system may support multiple users that access the system during a same session, in an interleaved or overlapping manner. The system may recognize the multiple users by name, voice, or other characteristic and may invoke a correct profile for each user. If multiple users are addressing the system in overlapping or interleaved sessions, the system may identify the multiple users and may invoke one or more corresponding profiles. For applications that require security safeguards, the multiple users may be verified using voiceprint matching, password or pass-phrase matching, or other security safeguards.

[039] When multiple users are engaged in interleaved sessions, the system may gracefully resolve conflicts using a probabilistic or fuzzy set decision method for each user. This process may simulate the manner in which a human would address multiple questions from various sources. For example, the system may answer short questions first in time while answering longer questions later in time. Alternatively, the system may answer questions in the order that they are received, among other configurations.

[040] Since the invention may operate in many environments, including mobile environments with background noise, point noise sources and people holding conversations, filtering of speech input may be advantageous. The invention may use, for example, either one-dimensional or two-dimensional array microphones (or other devices) to receive human speech. The array microphones may be fixed or employ dynamic beam forming techniques. The array pattern may be adjusted to maximize gain in the direction of the user and to null point noise sources. Alternatively, microphones may be placed at particular locations within the mobile environment near where occupants are likely to use the system. These microphones can be single microphones, directional microphones or an array of microphones. Speech received at the microphones may then be processed with analog or digital filters to optimize the bandwidth, cancel echoes, notch-out narrow band noise sources, or perform other functions. Following filtering, the system may use variable rate sampling to maximize the fidelity of the encoded speech, while minimizing required bandwidth. This procedure may be particularly useful in cases where the encoded speech is transmitted over a wireless network or link.

[041] The invention can be applied to a wide range of telematics applications. General applications areas can include, but are not limited to remote or local vehicle control, information query, retrieval and presentation from local or network sources, safety applications, and security applications.

[042] The system may provide local or remote control functions for the system, including devices that are located on the mobile structure or off the mobile structure. Users may initiate commands locally or remotely. Typically, remote operation may be conducted through an IP connection, a telephone connection, or other connections. The user may address spoken commands to a mobile device or desktop unit, which may send the commands to controllers on the vehicle over wireless links. Other remote command techniques may be used. The system may process commands in a nearly identical manner to a request. One difference being that the result of the command is generally an action rather than a response. In many cases, the system may give the user a cue or response to indicate that the command has been successfully executed or has failed. In cases of failure, an interactive session may be started to allow the user to resolve the difficulty or formulate a command more likely to succeed.

[043] The invention provides users, including mobile structure operators, with the capability to control most any mobile system functions using interactive speech and non-speech commands and/or requests. Generally, controls of a critical nature, or having safety implications, may employ fail-safe checks that, before execution, verify that a command will not create a hazardous condition. Manual overrides may also be provided as an extra precaution. The invention may provide built in help and user guidance for the devices under control. This guidance may include step-by-step training for operators that

are learning to use the features of the mobile structure. The system can provide extensive interactive guidance when commands cannot be executed or when commands fail. This advice may include suggestions to reformulate the command to succeed, suggestions to work around a failure, suggestions for alternative commands that may achieve a similar function, or other suggestions. Examples of control functions that can be performed from local or remote locations by the invention include:

1. Control of mobile structure multimedia entertainment electronics, such as radio, CD player, or video player. This control can be based on user specified play lists and may be sensitive to user profile information including, preferences history, or other information. The invention may include the ability to control multiple or individual multimedia entertainment stations.

2. Control of communications devices such as cell phones, voice mail systems, fax systems, text or instant messaging systems, call and message forwarding systems, email systems and other communication devices. This control includes controlling features such as, address books, phone books, call forwarding, conference calling, and voice mail, among others.

3. Local or remote control of mobile structure systems. Most any device on the mobile structure may be controlled including, door locks, window controls, interior temperature controls, shifting of the transmission, turn signals, lights, safety equipment, engine ignition, cruse control, fuel tank switches, seat adjustments, specialized equipment such as winches, lifting systems or loading systems, and other mobile structure systems.

4. Systems that are located external to the mobile structure typically may be controlled through wireless links including, garage door openers, gate controllers, mobile structure entry security passes, automated toll collection systems, and mobile structure weighing systems and other external systems.

5. Mobile structure power management and systems control. The invention may provide the mobile structure operator with information on limitations and on tips for better power management or fuel utilization or other systems control.

6. Diagnostic information management. The invention may provide diagnostic information announcements and warnings for the mobile structure operator. These announcements and warnings may be interactive allowing the operator to request additional information or to suggest various courses of action. The invention may mediate a solution to the problem, including providing access to a scheduling service, summoning help or providing instructions for remedial action until a permanent solution can be achieved. The system can ask the operator to authorize the ordering of needed parts and may provide cost estimates. The system may receive data for these announcements and warnings from a wide range of sources including sensors and vehicle control computers. Sensors may include fuel level sensors, coolant temperature sensors, oil temperature sensors, axel temperature sensors, tire pressure sensors, and other sensors.

7. System status inquiry. Mobile structure operators may use the interactive natural language interface of the invention to query and receive reports on the status of systems that are located on the mobile structure including, fuel level, interior temperature, outside temperature, engine or other mobile structure system

status. The operator can further query the system to receive more information or determine a course of action if problem is detected.

8. Vehicle service history. The invention can provide the vehicle operator or other personnel with interactive access to the vehicle service history. The invention can provide announcements or warnings as the time for service draws near. The user can interact with the system to schedule the required service, order required parts, receive cost estimates, or update the service history. Users may customize the nature of this interaction to suit their desires or policies.

9. Diagnostic and service history. The invention may provide diagnostic and service history information to service personnel. This information may include vehicle fault codes and other information for devices that are under control of or measured by the system. Alternatively, the invention may receive information on the state and history of vehicle operation from other control computers. The invention may provide interactive service information and history. The service history may be queried and presented through the speech interface or the non-speech interface. The system may prompt service personnel for more information if the record is deemed incomplete. In other cases, the invention may prompt service personnel for information on their actions if a change is detected in system status, such as replacement of a part.

[044] The invention can provide users or operators of a mobile structure with specialized safety functions through the interactive speech interface and/or non-speech interface. The invention may use a dynamically evocable personality that is capable of creating announcements that are appropriate for the severity of the situation. The

announcements and personalities may be under user control and configuration. Some examples of these safety applications can include:

1. The invention can provide automated detection and reporting of accident situations through the wireless communications link. Information on an accident situation can be gathered from airbag control systems or other sensors. Once an accident situation has been detected the invention may use the interactive speech interface and/or non-speech interface to determine the nature of the accident and/or the condition of victims. This information, along with location information and other relevant information, may be reported over the wireless link. Alternatively, the invention may establish voice channel communications or other communications between occupants of the vehicle and emergency personnel.

2. The invention can be used to store and retrieve medical information on vehicle occupants. Following an accident, emergency personnel may query the system for this information. Alternatively, the system may annunciate a warning to emergency personnel if a person has a special medical condition. The system maintains the security of medical information through a number of techniques, including not annunciating medical information unless an accident is detected, or not annunciating medical information unless that person or another authorized person gives permission.

3. Occupants of the vehicle can summon help in the event of a crime using the speech interface and/or non-speech interface. Typical crimes may include

robberies and hijackings. The invention allows vehicle occupants to set panic or emergency words or phrases that indicate to the system a crime is occurring.

4. The invention can provide the vehicle operator with safety announcements if an unsafe or potentially unsafe situation is detected. The operator can use the interactive speech interface and/or non-speech interface to obtain more information on the situation or dismiss the alert. The operator can annunciate or otherwise provide commands to remedy or mitigate the situation during this dialog. Conditions that can be announced include, following another vehicle too closely, too great a speed for the road or conditions, obstruction on roadway, a fire in some part of the vehicle, high cargo pressure or temperature, leaks, and other information.

5. The interactive speech interface and non-speech interface of the invention can provide the operator with real-time assistance. This assistance may include, aid in parking or backing a vehicle, aid with complex maneuvers, aid with optimal operation of the vehicle, and other operations. The operator can ask the system for advice or assistance with a planned maneuver or operation. Alternatively, the invention can proactively offer assistance if certain situations are detected.

6. The interactive speech interface and non-speech interface may be used to improve vehicle security. Voiceprints or voice authentication can be used to gain access to the vehicle or start the vehicle. Alternatively or in addition, a password or pass-phrase can be used. In another alternative speech security can be used as a supplement to other vehicle security techniques.

7. The invention can provide measurement of operator fatigue and alert the operator or remote personnel if unacceptable levels of fatigue are detected. The interactive speech interface and/or non-speech interface can be used to query the operator to detect fatigue. Alternatively, or in addition, other measurements of operator fatigue can be used. If a fatigue situation is detected the invention may initiate a dialog with the operator to determine the extent of the problem and if required, ask the operator to cease operation.

[045] The invention can offer vehicle operators and occupants a variety of services that are useful while in the vehicle and/or while arriving at a destination. Further, users can employ the interactive natural language interface to customize these services to suit each individual. Some examples of services that can be supported by the natural-language interactive speech interface of the invention, include:

1. Providing vehicle operators with interactive directions to a destination or waypoint, wherein the user can specify a desired destination and any preferred waypoints. A destination can be specified in any manner including providing the name of a place, an address, a name of a person, a name of a business, or other type of information. As the trip progresses the system may provide the operator with continued directions and warnings if a mistake has been made. The operator can query the system for additional information or request less information. Generally, the system is interfaced with one or more navigation sensors and local or remote map databases. The invention may provide operators or passengers with alerts of upcoming points or interest, exits or stops, hazards, or other conditions. The users can query the system for more specific information.

Alternatively, the invention can provide operators and occupants of the vehicle with an interactive guided tour. The system's information query, retrieval and presentation capability can be employed by users to receive additional information or points or items of interest during the tour and may take into account stored personal profile information for a user.

2. The invention can provide the operator of a vehicle with interactive dynamic routing information. The routing can be updated based on traffic conditions, weather conditions, facilities availability, and information provided by the operator. Generally, the system is interfaced with one or more navigation sensors, local or remote map databases, and sources of traffic, weather, and facilities use data.

3. The direction, routing and communications capabilities of the invention can be combined in an interactive system that helps one or more operators rendezvous at a predetermined destination or any other convenient midpoint. The operators may use the interactive natural language interface to communicate with the system to arrange the rendezvous, to receive directions as they travel to the rendezvous point and/or to communicate with the other operators.

4. The navigational capabilities of the invention may be used to place limits on where a vehicle is allowed to go and/or for how long. The system may employ the interactive natural language speech interface and/or non-speech interface to inform the operator when the vehicle is approaching or has exceeded a limit. The operator can query the system to determine the best course of action to return to limits or prevent exceeding them. Alternatively, the system can query the

operator to determine why they are exceeding the limits or to mediate a negotiation to extend the limits if this is required by circumstances. This capability is useful in several situations including, keeping a delivery or passenger vehicle on a regular route, setting and enforcing use limits on teenagers, preventing an operator from using the vehicle in an unauthorized manner, or other situations.

5. The interactive natural language interface of the invention can be used to provide Customer Relationship Management (CRM) services to vehicle operators and passengers. The user can interact with the services offered via data networks, video signals, or audio. The interaction can be performed with automated services or a live Customer Service Representative. Interactions with the customer service representatives can be through any combination of possible techniques, such as, live audio, live video, electronic messaging or email, instant messaging, and other techniques. These services can be offered by a number of entities including, vehicle manufacturers, vehicle dealers, vehicle service organizations, automobile or travel clubs, wireless carriers, travel service organizations, or other organizations. The services offered can be personalized to the occupants of the vehicle using a variety of information including, user profile information, history, location, paths traveled, time of day, day of week, or other information. In addition, the system can offer customized services based on information about the vehicle, including paths traveled, distance, service history, type of equipment on vehicle. These services can be accessed while a person is an occupant in a vehicle, while the person is not an occupant but are using a

wireless or wired network equipped mobile device or while using a wired or wireless network desktop system, among other situations. Examples of these services include:

a. Location based marketing programs wherein occupants of the vehicle receive promotional offers from merchants along a route of travel. Occupants can query the system for offers and promotions for goods, services, or other information, along the travel route. The system may apply other available information to form a response, including, the user profile, history, location, or other information. The system can provide optimized interactive routing assistance to the vehicle operator. Alternatively, the system can provide interactive offers and promotions for goods and services along the route, or in advance of a particular trip. Promotions can be offered for goods and services can include but are not limited to, travel services, groceries, prepared foods, vehicle service, fuel, entertainment, or other goods and services.

b. Remote ordering and payment for goods and services. The system can interactively present the menu or product catalog using the list and table presentation capabilities of the invention. The system may facilitate remote ordering by using location information, customer preferences, customer order history, etc. The system can manage a secure payment wallet for the users. Voiceprints, spoken passwords, and non-speech security methods (i.e. PIN pad, etc.) can be combined to create the appropriate level of security.

c. Travel services for occupants of the vehicle. These services can include, directories of travel and entertainment services, or reservations for entertainment restaurants, hotels and other accommodation. The system may present directories, lists and menus using its interactive list and table presentation capabilities. The travel service capability can be used in conjunction with the remote ordering and payment capabilities and the dynamic interactive routing capability.

d. Answer specialized travel related questions in areas such as vehicle registration, taxes, safety laws, required inspections, weight limits, insurance coverage requirements, insurance policy provisions, or other areas.

6. The invention can provide an operator or other occupant of a vehicle with an interactive location sensitive shopping list or a location and time sensitive task reminder list using the natural language interface. Users can create the list while in the vehicle, while on foot using a mobile device, or at a fixed location using a handheld or desktop device. A user may grant permission to other users to add tasks or shopping items to their lists. Once in the vehicle, the system may provide occupants with routing assistance to optimize travel time and may provide reminders of items to be purchased and tasks to be completed as the vehicle comes in close proximity to a particular location, type of merchant or other service provider, or when a set time has been reached, among other criteria.

7. Automatic interactive dispatch and reporting for fleet vehicles having vehicle operators or other vehicle occupants that use the speech interface and/or

non-speech interface to interact with these services. These services can include, dynamic optimal routing, inventory of parts and other materials, ordering of required parts and materials, work orders, receipt generation, payments, or other services.

8. Sales force automation, sales reporting, contact database management, calendar management, and call routing. The system may employ its interactive list and table presentation capabilities to supply catalog and pricing information or other information. These services can use local or network data. Additional services can include, memos, reminders, activity lists, or other information.

[046] Vehicle operators and other occupants can use the interactive natural language interactive interface of the invention to perform many types of information query, retrieval and presentation operations. Using the natural language interactive interface, users can modify the parameters of queries or specify the presentation formats for results. Data used to create a response can be from any combination of local and remote data sources. User specific data can be synchronized between systems fixed to one or more vehicles, mobile structures and desktop systems. Some examples of information query, retrieval and presentation applications for the invention include, but are not limited to the following:

1. White pages and yellow pages lookups to find, email addresses, telephone numbers, street addresses and other information for businesses and individuals. These services can be used in conjunction with other services, including remote ordering and payment, offers and promotions, mapping, and driving directions;

2. Management and access to personal address book, calendars and reminders for users;

3. Automatic telephone dialing, reading and sending emails, pages, instant messaging by voice, text or video and other communications control functions;

4. Selection, schedules and play list management for television, satellite broadcast, radio or other entertainment schedule. The available information can include reviews and other information on programming. The system may provide device control for users;

5. Weather information for the local area or other locations;

6. Stock and other investment information including, prices, company reports, profiles, company information, business news stories, company reports, analysis, price alerts, news alerts, portfolio reports, portfolio plans, or other information;

7. Local, national and international news information including headlines of interest by subject or location, story summaries, full stories, audio and video retrieval and play for stories;

8. Sports scores, news stories, schedules, alerts, statistics, background and history information, or other information;

9. The ability to subscribe interactively to multimedia information channels, including sports, news, business, different types of music and entertainment, applying user specific preferences for extracting and presenting information;

10. Rights management for information or content that is used or published;

11. Horoscopes, daily jokes and comics, crossword puzzle retrieval and display and related entertainment or diversions;

12. Interactive educational programs using local and network material, with lesson material level that is set based on user's profile, location of the vehicle, planned route of the vehicle, planned activities during the trip and including, interactive multimedia lessons, religious instruction, calculator, dictionary and spelling, geographic information, instruction for specialized tasks planned during the trip, language training, foreign language translation, presentation of technical manuals, and encyclopedias and other reference material.

[047] It will be appreciated that the foregoing statements of the features of the invention are not intended as exhaustive or limiting, the proper scope thereof being appreciated by reference to this entire disclosure and reasonably apparent variations and extensions thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

[048] The invention will be described by reference to the preferred and alternative embodiments thereof, in conjunction with the drawings in which:

[049] Figure 1 is an overall block diagram of the system according to a first embodiment of the invention;

[050] Figure 2 is an overall block diagram of the system according to a second embodiment of the invention;

[051] Figure 3 is an overall block diagram of a mobile device according to an embodiment of the invention;

[052] Figure 4 is an overall block diagram of a fixed computer according to an embodiment of the invention;

[053] Figure 5 is an overall diagrammatic view of the interactive natural language processing system according to an embodiment of the invention;

[054] Figure 6 is a schematic block diagram showing the agent architecture according to an embodiment of the invention;

[055] Figure 7 illustrates a diagram for centrally maintaining context, according to one embodiment of the invention; and

[056] Figure 8 illustrates a system diagram for an enhanced conversational voice user interface according to one embodiment of the invention.

DETAILED DESCRIPTION

[057] The following detailed description refers to the accompanying drawings, and describes exemplary embodiments of the invention. Other embodiments are contemplated and modifications may be made to the exemplary embodiments without departing from the spirit, functionality and scope of the invention. Therefore, the following detailed descriptions are not meant to limit the invention.

[058] According to one embodiment of the invention, a telematic natural language speech interface and non-speech interface are provided for use in mobile environments and telematic applications. The system, or portions thereof, may be used in vehicles, while on foot or at a fixed location such as an office or home, or at other locations. An overall block diagram of one embodiment of the invention is illustrated in Figure 1.

[059] A speech unit 128 and/or a keypad 14 may be integrally coupled to a mobile structure 10 or may be part of mobile devices 36, fixed home or office computer systems

44, or other devices. Mobile devices 36 may include mobile telephones, personal digital assistants, digital radios, compact disk players, navigation systems, or other mobile devices. The mobile devices 36 may be configured to integrate with set-top boxes, alarm clocks, radios, or other electronic components. The speech unit 128 and/or keypad 14 may be interfaced to a Telematics Control Unit (TCU) 28 through one or more data interfaces 26. According to some embodiments, the main speech-processing unit 98 may be embedded in one or more TCU 28. In some embodiments, the components of the speech unit 128 may also be distributed between one or more TCUs.

[060] A speech-processing unit may be built into mobile devices 36 and may be coupled with the data interfaces 26 though a wireless, or wired, handheld interface 20. Other user interface peripherals may be connected to the TCU through the data interfaces and may include displays 18, such as touch screen displays for displaying text, graphics and video; keypads 14 for receiving textual data input; video cameras 16 for receiving multimedia communications or conferences; a pointing device or stylus, or other user interface peripherals. Other devices may be connected to the TCU through the data interfaces including wide-area RF transceivers 24, navigation system components 22, or other devices. The navigation system may include several components such as, Global Positioning System (GPS) receivers or other radiolocation system receivers, gyroscopes or other inertial measurement equipment, distance measurement sensors, such as odometers, or other components. Radiolocation equipment may receive coded signals from one or more satellites or terrestrial sources 40. The one or more location service servers 48 may assist the navigation system. Other systems that can connect to the TCU through the data interfaces may include automotive control computers, digital control

interfaces for devices such as media players or other electronic systems, measurement sensors, or other specialized electronic equipment.

[061] The control and device interfaces 30 may connect the TCU 28 to various devices 32 within the mobile structure 10. The control and device interfaces 30 may be used to execute local or remote commands from users of the natural language interface. In some cases, the control and device interfaces 30 may include specialized hardware for interacting with different types of devices. The hardware interfaces may include analog or digital signal interfaces for device control, along with analog or digital interfaces for measurements that may control devices 32. These interfaces may also include specialized software that encapsulates or abstracts specific behavior of the devices 32. The interface software may include one or more drivers that are specific to the hardware interface and to one or more agents. The domain agents may include the specialized software behavior and data required to control a particular device or class of devices. New or updated behavior may be added to the system by updating data managers that are associated with specific devices or class of devices. The devices 32 may include manual controls or manual overrides 34. For safety reasons, the control and device interfaces 30 may incorporate fail-safe systems that, for example, may verify operating limits before changing settings, ensuring that commands do not conflict with settings from manual controls, and will not, in some combination with other commands or device settings, create an unsafe situation. The software behavior and data that ensures safe operations may be included within the domain agent that is specific to the device or class of devices. Examples of devices and system that can be controlled through the control and device interfaces 30 include, power management systems, measurement sensors, door locks,

window controls, interior temperature controls, shifting of the transmission, turn signals, lights, safety equipment, engine ignition, cruise control, fuel tank switches, seat adjustments, specialize equipment such as winches, lifting systems or loading system, and other systems.

[062] The wide-area RF transceiver 24 may communicate with one or more wide-area wireless networks 38, which may be connected to data networks 42, including the Internet, the Public Switched Telephone Network (PSTN) 42 or other data networks. The wide-area wireless networks can be of any suitable terrestrial or satellite based type. Mobile devices 36 may communicate with one or more local or wide-area wireless networks. Home or office systems 44, equipped with wired or wireless network interfaces, may communicate through the data networks or PSTN.

[063] According to one embodiment of the invention, data and agents may be stored and synchronized in mobile structures 10, mobile devices 36 and/or fixed systems 44 having one or more main speech-processing units 98. The synchronization between these different systems can occur on the wide area wireless network 38, the data network 42, through the handheld interface 20, or other local data connections. The synchronization may be performed automatically when any two or more of the computers are connected to these networks. Alternatively, the synchronization may be performed on demand under user control. The synchronization process attempts to determine which version of a data element or an agent are the newest or most up-to-date and propagates that element. Thus, synchronization is an incremental change processes. In some cases, a complete replacement of a database, a portion of the database or of one or more agents may be performed rather than performing a series of incremental updates.

[064] The wide-area wireless networks 38, the data networks 42 or PSTN, may connect mobile structures 10, mobile devices 36 and fixed computers 44 to one or more servers that provide one of more services. According to one embodiment of the invention, an interactive natural language user interface may be provided that supports a transfer of data or transmission of speech, text, video and other formats. For data centric applications, a standardized data transfer format may be used including, for example, Hypertext Markup Language over Hypertext Transfer Protocol (HTTP), Extensible Markup Language (XML), and other data formats or schemas, over HTTP or other transfer protocol, Electronic Data Interchange formats over a variety of transport protocols, etc. It will be understood that the exact configuration of the servers may be determined on a case-by-case basis with consideration being given to the exact combinations of services being offered, the service providers providing the services, the contractual relationships between the service provider, and other factors. The invention supports any suitable configuration. In each case these servers may themselves be distributed over one or more public or private networks. Some examples of servers that may be used to deliver these services, are given below:

1. One or more payment service providers 56 that supply payment capabilities to users. These payment services may include electronic wallet capabilities for one or more payment accounts and may include payment security information, payment account information, transaction histories, account balance information, and other information. Exemplary payment types include, stored value accounts, promotional accounts, credit accounts, telecommunications billing accounts, debit accounts, or other payment types that are accessed using online or

offline methods. Payments can be computed in any manner including payment for a specific good or service, subscription payment, metered payment, or other payments. The payment services can be distributed in a number of ways. Examples of computers and servers used to store and process payment transaction information include, smart cards, main speech processing units 128, mobile devices 36, TCUs 28, fixed personal computers 44, payment gateways, payment servers 56, or other systems.

2. One or more Customer Relationship Management (CRM) systems 52 may supply any number of consumer and business customer services as discussed above. The CRM system can supply automated services or services that are partly or completely manual. For manual services one or more customer service representatives may use one or more service representative workstations 54. The CRM system and the service representative workstation may be connected to one or more data networks 42 or the PSTN. Any other servers may also have connections to one or more service representative workstations, which may be in common or independent of each other.

3. One or more specialized service servers 50 may support specialized consumer and business services.

4. One or more location service servers 48 may supply location information and location based services. The location data is used as a data input to the location services that may then be distributed in any suitable manner including, on main speech processing units 128, mobile devices 36, TCUs 28, fixed personal

computers 44, other servers (i.e. 46, 50, 52, 56) or the one or more location services servers 48.

5. One or more emergency services servers 46 may supply both public and private emergency services to the users.

[065] Main speech processing unit 98, speech unit 128 and keyboard 14 may be distributed in mobile devices 36 in a number of ways. For example, these units may be attached to the mobile devices 36 as independent components or as a single integrated component. In another embodiment of the invention, some or all of the main speech processing unit 98 and speech unit 128 may be embedded in one or more of the TCUs 28, mobile devices 36, fixed computer systems 44, or other devices.

[066] Figure 2 illustrates an alternative block diagram of a second embodiment of the invention. In this embodiment, the main speech processing unit 98 and speech unit 128 are external to the TCU 28. These components may be housed in one or more packages or may be included in a single integrated package.

[067] In all other respects, the second embodiment resembles the first embodiment illustrated in Figure 1. It will be understood that the exact distribution and packaging of the main speech processing unit 98 and speech unit 128 may be determined by the details of the deployment situation and should not change the functionality, capabilities or spirit of the invention in any way.

[068] Figure 3 illustrates a block diagram of one embodiment of the mobile devices 36 that include main speech processing unit 98 and speech unit 128 embedded in the mobile device 36, mobile telephone or other mobile device. The main speech processing unit may interface to one or more processing units 70 located in the mobile device 36. The

processing units 70 may include one or more central processing units, one or more data and address busses, data interfaces, volatile memory, or other components. The processing units 70 may use one of more types of nonvolatile memory 80 for software and data storage. Suitable types of nonvolatile memory 80 may include flash memory and hard disk drives. In some embodiments, the main speech processing unit 98 may be integrated with the one or more processing units 70.

[069] According to one embodiment, users may interact with the mobile device 36 through the speech unit 128, the keypad 74 or keyboard, a display 72 that displays text, graphics, video, or other peripheral. In some embodiments the display may be a touch screen type. Alternatively, a pointing device (not shown) may be used, among other devices.

[070] The mobile device 36 may connect to one or more wired or wireless wide-area or local-area networks through one or more interfaces. A wide-area network transceiver 78 may connect to the wide-area wireless network 38 or the data network 42 using a wireless or wired connection, including an IP connection, a dial-up PSTN network connection or other connections. The local-area network transceiver 76 may connect to wired or wireless local area networks. These networks may include the handheld interface 20 or connections to fixed computer systems 44. In both mobile device environments and fixed computer environments, communications between humans and machines may not provide accurate results at least because natural language commands may be incomplete in their definition. The occurrence of inaccurate results may be reduced by leveraging context of previous utterances, knowledge of the domain and/or the user's history of interests and preferences or other factors.

[071] According to one embodiment of the invention, processing may be performed at the mobile devices 36. Alternatively, the processing may be performed on the server side. In yet another embodiment, the processing may occur on both the mobile devices 36 and the server side. The commands may be processed on-board the mobile devices 36 to enable the mobile devices 36 to control themselves and/or to control other mobile devices 36, fixed computers 44, mobile telephones, or other devices. Additionally, mobile devices 36 may track context. According to another embodiment of the invention illustrated in FIG. 7, a context manager 702 may be centrally maintained to allow input to and output from multiple mobile devices 36. Each of the mobile devices may communicate with the context manager 702 to register via registration module 712, wherein registration may indicate events that the mobile devices 36 may subscribe to. The context manager 702 may receive input in Context XML form, for example. The other registered mobile devices 36 may be informed of context changes through context tracking module 714, thereby synchronizing the context across the registered mobile devices 36. According to one embodiment of the invention, registered mobile devices 36 may be added or removed. The registered mobile devices 36 may be dynamic link libraries (DLLs), object code, or other data that may be specific to the mobile device 36.

[072] According to yet another alternative embodiment of the invention, context information may be determined from a command or request that is presented as a text message and/or a command or request that is presented as a verbal utterance and processed using a multi-pass automatic speech recognition module that transcribes the verbal utterance to a text message. The multi-pass automatic speech recognition module may use a dictation grammar or a large vocabulary grammar, among other resources, to

transcribe the verbal utterance into a text message. On platforms where a dictation grammar is not available, the multi-pass automatic speech recognition may use a virtual dictation grammar that uses decoy words for out-of-vocabulary words. Decoy words may include utility words, nonsense words, isolated syllables, isolated distinct sounds and other decoy words.

[073] According to one embodiment of the invention, the text message may be searched for a particular character, group of characters, word, group of words, and other text combinations. The text combination may be compared against entries in a context description grammar that is associated with each agent 106. If a match is identified between an active grammar in the context description grammar and the command and/or request, then the match may be scored. The agents 106 may be ranked based on the determined score. In generating an aggregate response from the one or more responses received from the agents 106, the ordering of the responses from the individual agents may be determined based on the rank of agents 106. The aggregate response may be generated by a response generator module. Agents 106 may update a context stack, that includes an ordered list of command contexts, to enable follow-up requests.

[074] According to another embodiment of the invention, if a match is not found, or only a partial match is found, between the text message and active grammars, then a knowledge-enhanced speech recognition system may be used to semantically broaden the search. The knowledge-enhanced speech recognition system may be used to determine the intent of the request and/or to correct false recognitions. The knowledge-enhanced speech recognition may access a set of expected contexts that are stored in a context stack to determine a most likely context. The knowledge-enhanced speech recognition may

use context specific matchers that are able to identify context such as time, location, numbers, dates, categories (e.g., music, movies, television, addresses, etc.) and other context. The matching may be performed by comparing a character, group of characters, a word, group of words, and other text combinations. Alternatively, or in addition to text based matching, the matching may be performed using phonetic matching, among other techniques. The results of any match may be used to generate a command and/or request that is communicated to agents 106 for additional processing. According to one embodiment of the invention, non-speech interface 114 may show system, state and history information in a more concise manner than is possible through the speech interface. Non-speech interface 114 may be accessed to create or extend capabilities of agents 106. These operations may include scripting of agents, adding data to the agent or databases 102 used by the agent, adding links to information sources, among other operations.

[075] According to another embodiment of the invention, mobile devices 36 may be configured to allow speech annotations of objects stored thereon. The objects may include photographs, calendar entries, email messages, instant messages, phonebook entries, voice mail entries, digital movies or other objects. Mobile devices 36 may transcribe the speech annotations to textual annotations and store the textual annotations with the object. Alternatively, mobile devices 36 may be configured to enable users to input non-speech annotations, such as textual descriptions, that are stored along with the objects.

[076] According to one embodiment of the invention, the annotated objects may be stored on a server side, a client side, a combination of server side and client side, or

according to other configurations. The invention further contemplates collaboratively exchanging and sharing the annotated objects among distributed workgroups that may include centralized servers having shared workspaces for providing common object storage and retrieval facilities. The shared workspaces may be implemented on the centralized servers and may be accessed from different platforms using the mobile devices 36. The system may include a peer-to-peer system for accessing the annotated objects.

[077] According to one embodiment of the invention, the non-speech annotations may be classified and searched. In an alternative embodiment, the speech annotations may be classified and searched. However, classifying and searching speech annotations may be considerably more difficult than classifying and searching non-speech annotations.

[078] According to another embodiment of the invention, the textual annotations and/or textual descriptions that are associated with the objects may be stored as metadata, thereby enabling searching for the objects using the metadata. The metadata may include GPS information, environmental information, geographic information, or other information. For example, proximity to famous landmarks may be determined using GPS information, environmental information, geographic information, or other information, and this information may be integrated into the metadata associated with the objects. According to one embodiment of the invention, GPS coordinates may be stored in the metadata associated with the objects and users may search for selected objects based on the GPS coordinates. A user may provide a speech command such as "show me all the photos of Greece." In this case, the system would limit the type of object to photographs and would determine the GPS coordinates of Greece. The system would then search the

metadata for objects that correspond to photographs and that also satisfy GPS coordinates for Greece. According to another embodiment of the invention, including GPS coordinates in the metadata of objects enables post-processing of the objects based on the GPS coordinates. For example, the objects may be subjected to an initial sort based on generalized GPS coordinates that are stored in the metadata and may be subjected to additional sorting based on more particular criteria for the GPS coordinates. Thus, a user may initially search for object metadata that corresponds to a location near a famous landmark and may use image matching to label the objects with the searchable metadata (i.e., textual descriptions). For example, using the GPS coordinates stored in the metadata, users may first determine that photographs were taken at the Jefferson Memorial and may use this information to label the photographs with searchable metadata (i.e., textual descriptions) including "photo of the Jefferson Memorial." One of ordinary skill in the art will readily appreciate that metadata may include various types of information and may be searched using the various types of information.

[079] According to one embodiment of the invention, the textual annotations may be communicated using a short message service on the mobile telephone or other device. Short message service is a text message service that enables sending and receiving of short textual messages. The textual messages may be stored at data centers for forwarding to intended recipients. Other configurations may be used.

[080] According to another embodiment of the invention, the mobile devices 36 may support multi-modal communications that enable displaying of non-speech search results on a graphical interface and receipt of speech commands to provide a follow-up search, among other configurations. For example, the user may be presented with textual search

results corresponding to a name of a famous person and the user may provide a speech command to find a biography of the famous person. The system may maintain the context of the textual search results to find the biography associated with the famous person. By contrast, known systems may perform a follow-up search on the term "biography" and may present a dictionary definition of the term "biography."

[081] Figure 4 illustrates an embodiment that uses a fixed computer 44. In some embodiments, the main speech processing unit 98 and speech unit 128 may be embedded into the fixed computer 44. The main speech processing unit may interface with one or more processing units 84 that are associated with the fixed computer. The processing units may include one or more central processing units, one or more data and address busses, data interfaces, volatile memory, or other components. The processing unit may use one of more types of nonvolatile memory 94 for software and data storage. Suitable types of nonvolatile memory include, for example, flash memory and hard disk drives. In some embodiments, the main speech processing unit 98 may be integrated with the one or more processing units 84. According to one embodiment of the invention, processing may be performed at the fixed computers 44. The commands may be processed on-board to enable the fixed computers 44 to control themselves and/or to control other fixed computers 44, mobile devices 36, mobile telephones, or other devices. Additionally, fixed computers 44 may track context as described above.

[082] According to another embodiment of the invention, fixed computers 44 may be configured to allow verbal annotations of objects stored thereon. Fixed computers 44 may transcribe the verbal annotation to text and store the textual annotation with the object. Alternatively, fixed computers 44 may be configured to enable users to manually

input textual descriptions that are stored along with the objects. According to one embodiment of the invention, the textual annotations and/or textual descriptions may be classified and searched. In an alternative embodiment, fixed computers 44 may classify and search the verbal annotations rather than textual annotations. However, classifying and searching verbal annotations may be considerably more difficult than classifying and searching textual annotations and/or textual descriptions.

[083] In another embodiment of the invention, users may interact with fixed computers 44 using speech unit 128, the keyboard 88 or keypad, a display 86 for displaying text, graphics, video, or other peripherals. According to some embodiments of the invention, the display may be a touch screen type. Alternatively, a pointing device (not shown) may be used, along with other devices. Fixed computers 44 may be coupled to one or more wired or wireless wide-area or local-area networks through one or more interfaces. A wide-area transceiver 92 may connect to the wide-area wireless network 38 or the data network 42, using a wireless or wired connection, including an IP network, a dial-up PSTN network connection, or other connections. The local-area network transceiver 90 may connect to wired or wireless local area networks. These networks may include connections to mobile devices 36.

[084] In order for devices to properly respond to requests and/or commands that are submitted in a natural language form, machine processable requests and/or algorithms may be formulated after the natural form questions or commands have been parsed and interpreted. Algorithms describe how the machines should gather data to respond to the questions or commands. Depending on the nature of the requests or commands, there may not be a simple set of requests and/or algorithms that will return an adequate

response. Several requests and algorithms may need to be initiated and even these requests and algorithms may need to be chained or concatenated to achieve a complete response. Further, no single available source may contain the entire set of results needed to generate a complete response. Thus, multiple requests and/or algorithms, perhaps with several parts, may be generated to access multiple data sources that are located both locally or remotely. Not all of the data sources, requests and/or algorithms may return useful results or any results at all. Useful results that are returned are often embedded in other information and may need to be extracted from the other information. For example, a few key words or numbers may need to be "scraped" from a larger amount of other information in a text string, table, list, page, video stream or other information. At the same time, extraneous information including graphics or pictures may be removed to process the response. In any case, the multiple results must be evaluated and combined to form the best possible response, even in cases where some requests do not return useful results or fail to produce results entirely. In cases where the command is determined to be ambiguous or the result is inherently subjective, determining the results to present in the response is a complex process. Finally, to maintain a natural interaction, responses should be returned to the user rapidly. Managing and evaluating complex and uncertain requests, while maintaining real-time performance, is a significant challenge.

[085] The invention provides a complete speech-based command generation, information query, retrieval, processing and presentation environment or a combination of speech-based and non-speech-based command generation, information query, retrieval, processing and presentation environment for telematic applications. In addition, the invention may be useful for controlling the system itself and/or external

devices. This integrated environment makes maximum use of context, prior information and domain and user specific profile data to achieve a natural environment for one or more users submitting requests or commands in multiple domains. Through this integrated approach, a complete speech-based natural language command, algorithm and response environment or a combination of speech-based and non-speech-based command, algorithm and response environment may be created.

[086] The telematic natural language interface may be deployed as part of, or a peripheral to a TCU or other mobile devices 36, as part of a mobile device interfaced to vehicle computers and other mobile system through wired, wireless, optical, or other types of connections or fixed computers interfaced to the vehicle computers or other systems through a combination of wired, wireless, optical and/or other types of connections. Alternatively, the components of the interactive natural language telematic interface may be distributed in any suitable manner between these multiple computing platforms.

[087] Figure 5 illustrates one exemplary schematic diagram view of a system 90 according to an embodiment of the invention. The system 90 may include a main unit 98, speech units 128, and multi-modal devices 155. In an alternative embodiment, the system 98 may include completely separate systems for main unit 98, speech units 128 and multi-modal devices 155. The event manager 100 may mediate interactions between components of main unit 98. The event manager 100 provides a multi-threaded environment allowing the system 98 to operate on multiple commands or questions from multiple user sessions, without conflict, and in an efficient manner to maintain real-time response capabilities.

[088] FIG. 8 illustrates one exemplary embodiment of an enhanced conversational user interface 800 that receives multi-modal input from users 802 and communicates with a conversational speech analyzer 804. The conversational speech analyzer 804 may be coupled to several components, including a general cognitive model 806, an environmental model 808, a personalized cognitive model 810, and an adaptive misrecognition analysis engine 812 or other components. According to one embodiment of the invention, the conversational speech analyzer 804 may include one or more speech recognition engines that transcribe utterances to textual messages. The transcription may be performed using one or more conversational grammars, a context description grammar 112, or other transcription methods. According to one embodiment of the invention, data that is entered in a text format may be merged with data that is transcribed to a textual format from the utterance. Conversational speech analyzer 804 also may include a semantic knowledge-based model that analyzes the textual message and detects command components.

[089] According to one embodiment of the invention, personalized cognitive model 810 is a model derived from a user's interaction pattern with the system and may be used to predict what actions the user may take next in time, thus assisting with speech recognition and/or question or command recognition. Personalized cognitive model 810 may track actions performed by the user. When the system is attempting to predict user behavior, the personalized cognitive model may be consulted first. The system may have multiple personalized cognitive models, wherein one may correspond to each user.

[090] According to another embodiment of the invention, general cognitive model 806 is a statistical abstract that corresponds to interaction patterns with the system for

multiple users. Data stored within general cognitive model 806 may be used to predict a user's next action, thus assisting with speech recognition and/or question or command recognition. The general cognitive model 806 may also track what actions a particular user has performed and may be used when the user interacts with the system in a way that is not handled in the personalized cognitive model.

[091] According to one embodiment of the invention, the environmental model 808 may include information associated with the user's environment and surroundings. The information may include the type of environment that a user is in (e.g., quiet or noisy); details of a microphone and/or speaker system; the user's current global position and movement, as may be determined by GPS; current system status, such as what song/movie is playing, is the system in the midst of retrieving something, or other system status; details on all voice-enabled devices in the immediate vicinity, such as a presence of a voice-enabled TV, stereo, and DVD player in the same room; a user's credit card information, such as numbers and current balances, wherein the user may ask a mobile telephone to download and pay for a video and the system may respond that there are insufficient funds; or other information. The information may be accessed to invoke a context, domain knowledge, preferences, and/or other cognitive qualities that enhance the interpretation of questions and/or commands.

[092] The conversational speech analyzer 804 may also access the general cognitive model 806 and/or the personalized cognitive model 810 to further refine a context, domain knowledge, preferences, and/or other cognitive qualities to enhance the interpretation of questions and/or commands. Based on information received from general cognitive model 806, environmental model 808 and/or the personalized cognitive

model 810, the system may enhance responses to commands and questions by including a prediction of user behavior.

[093] Adaptive Misrecognition Analysis Engine 812 may analyze and store textual messages, including transcribed utterances, that are identified as being unrecognized or incorrectly recognized by conversational speech analyzer 804. Upon a determination that text is unrecognized, the system may generate an unrecognized event. For example, an unrecognized event may result from not finding a match to text and/or the transcribed utterance.

[094] According to one embodiment of the invention, the system may implement one or more techniques to determine that textual messages are incorrectly recognized. For example, the user may command the system to play a specific song title and the system may misrecognize the requested song title and provide a song having a different title, the system may misrecognize an incorrect song title and provide a song having a different than requested title, the system may misrecognize a correct song title and provide a song having an invalid song title, among other variations. When the system misrecognizes a request, the user typically provides immediate feedback such as, overriding the command in a time shorter than the expected execution time of the command, repeating the original request, issuing a stop command, or taking other action, wherein the action may be presented verbally, non-verbally by pushing a selected button on a cell phone or remote control, or both, among other configurations. According to one embodiment of the invention, the system may detect the user action and may prompt the user to re-phrase the request to enable the system to modify words in the query. The user's actions may be analyzed in a statistical model to determine a frequency occurrence

of misrecognitions for particular commands, with the results being used to update the corresponding personalized cognitive model 810.

[095] According to another embodiment of the invention, the conversational speech analyzer 804 may access the personalized cognitive model 810 to proactively select a next best (or nth best) match for the received text. A match may be confirmed by user action that include the user not immediately canceling the command or taking other action. The misrecognitions may also be analyzed to potentially determine personalized tuning parameters for the speech recognition components of the system. For example, the system may, over time, tune the speech recognition engine to increase recognition by analyzing how the speech recognition engine misrecognizes the utterance.

[096] The event manager 100 may mediate interactions between other components of the invention. The event manager can provide a multi-threaded environment allowing the system to operate on multiple commands or questions from multiple user sessions without conflict and in an efficient manner, maintaining real-time response capabilities.

[097] Agents 106 may include a collection of grammars, criteria handlers, and algorithms that are accessible to respond to a set of requests and/or commands. Agents 106 may further contain packages of both generic and domain specific behavior for the system 98. Agents 106 may use nonvolatile storage for data, parameters, history information, and locally stored content provided in the system databases 102 or other local sources. One or more user profiles 110 may be provided that include user specific data, parameters, and session and history information for determining the behavior of agents 106. One or more personality modules 108 may be provided in a data determining system that include personality characteristics for agents. The update manager 104

manages the automatic and manual loading and updating of agents 106 and their associated data from the Internet 146 or other network through the network interface 116.

[098] According to one embodiment of the invention, the speech-based interface for the system 90 may include one or more speech units 128. Speech units 128 may include one or more microphones, for example array microphone 134, to receive the utterances from the user. The speech received at the microphone 134 may be processed by filter 132 and passed to the speech coder 138 for encoding and compression. In one embodiment, a transceiver module 130 may transmit the coded speech to the main unit 98. Coded speech received from the main unit 98 is detected by the transceiver 130, then decoded and decompressed by the speech coder 138 and annunciated by the speaker 136.

[099] According to one embodiment of the invention, the non-speech-based interface for the system 90 may include one or more multi-modal devices 155 that may include mobile devices, stand alone or networked computers, personal digital assistances (PDAs), portable computer devices, or other multi-modal devices.

[0100] The speech units 128, multi-modal devices 155 and the main unit 98 may communicate over a communication link. The communication link may include a wired or wireless link. According to one embodiment, the communication link may comprise an RF link. The transceiver 130 on the speech unit may communicate coded speech data bi-directionally over the communication link with the transceiver 126 on the main unit 98. According to another embodiment, the RF link may use any standard local area wireless data protocols including the IEEE 802.11, Bluetooth or other standards. Alternatively, an infrared data link conforming to any suitable standard such as IrDA or other infrared standards can be used. In an alternative embodiment, wires may connect

the speech unit 128 and the main unit 98, eliminating the need for one speech coder 138. Other wired or wireless analog or digital transmission techniques can be used.

[0101] According to one embodiment of the invention, coded speech received at the transceiver 126 on the main unit 98 is passed to the speech coder 122 for decoding and decompression. The decoded speech may be processed by the speech recognition engine 120 using the context description grammar module 112, among other information. Any recognized information may be processed by the parser 118, which transforms information into complete algorithms and questions using data supplied by knowledge agents. Knowledge agents may be selected from the plurality of agents 106 using a grammar stack, wherein the knowledge agents provide information for generating a response to the question or command. The knowledge agents may then process the commands or questions by creating requests that are submitted to local databases 102 or submitted through the network interface 116 to external data sources over the Internet 146 or external other networks. Algorithms typically result in actions taken by the system 90 itself (i.e., pause or stop), or to a remote device or data source (i.e., download data or program, or control a remote device), through the network interface to the Internet or other data interface.

[0102] According to one embodiment of the invention, knowledge agents may return results of questions as responses to users. The responses may be created using the results of information requests, the system personality 108, the user preferences, other data in the user profile 110, and/or other information. Agents 106 may present these results using the speech unit 128. The agents 106 may create a response string, which is sent to the text to speech engine 124. The text to speech engine 124 may generate the utterances,

which may be encoded and compressed by the speech coder 122. Once coded, the utterances are transmitted from the main unit 98 by the transceiver 126 to the transceiver 130 on the speech unit 128. The utterance is then decoded and decompressed by the speech coder 138 and output by the speaker 136. Alternatively, agents 106 may present the results using multi-modal devices 155.

[0103] The non-speech interface 114 may be part of, or separate from, the multi-modal devices 155 and may be used as a substitute or complement to the speech interface. For example, non-speech interface 114 may be used to present and interact with non-speech (e.g., graphical or tabular) information in a manner more easily understood by the user. According to one embodiment of the invention, multimodal support may be provided to maintain the context during both voice interaction and interaction through the non-speech interface 114. In one exemplary embodiment, a communication channel may be opened between multimodal devices 155 and the main user interface system 90 to allow multimodal devices 155 to input text commands and questions. According to another embodiment of the invention, multimodal devices 155 may send a string of text or keywords for a command or question. The main interface system 90 may synchronize the context between multimodal device 155 and the speech units 128. In order to send a response to the corresponding device, the main user interface system 90 may track where the input came from so that the response may be sent to a TTS or multi-modal device 155.

[0104] According to one embodiment of the invention, non-speech interface 114 may show system, state and history information in a more concise manner than is possible through the speech interface. Non-speech interface 114 may be accessed to create or

extend capabilities of agents 106. These operations may include scripting of agents, adding data to the agent or databases 102 used by the agent, adding links to information sources, among other operations.

[0105] According to another embodiment of the invention, system 90 may include different types of agents 106. In some embodiments of the invention, generic and domain specific behavior and information may be organized into domain agents 156. The system agent, on the other hand, may provide default functionality and basic services. The domain specific agents may provide complete, convenient and re-distributable packages or modules for each application area. In other words, the domain agents may include data that is needed to extend or modify the functionality of the system 90 in a current or new domain. Further, domain agents and their associated data can be updated remotely over a network as new behavior is added or new information becomes available. Domain agents may access a plurality of sources that may provide various services. Domain agents may use the services of other, typically more specialized, data managers and system agent. Agents are distributed and redistributed in a number of ways including on removable storage media, transfer over networks or attached to emails and other messages. The invention may provide license management capability allowing the sale of data managers by third parties to one or more users on a one time or subscription basis. In addition, users with particular expertise can create data managers, update existing data managers by adding new behaviors and information and making these data managers available to other users. A block diagram of the agent architecture according to an embodiment of the invention is shown in Figure 6.

[0106] Agents 106 may receive and return events to the event manager 100. Both system agents 150 and domain agents 156 may receive questions and commands from the parser 118. Based on keywords in the questions and commands and the structures of the questions and commands, the parser may invoke selected agents. Agents use the nonvolatile storage for data, parameters, history information and local content provided in the system databases 102.

[0107] According to one embodiment of the invention, when the system starts-up or boots-up, the agent manager 154 may load and initialize the system agent 150 and the one or more domain agents 156. Agent manager 154 includes knowledge of agents 106 and maps agents 106 to the agent library 158. At shutdown, the agent manager may unload the agents 106. The agent manager 154 also performs license management functions for the domain agents 156 and content in the databases 102.

[0108] The system agent 150 manages the criteria handlers 152 that handle specific parameters or values (criteria) used to determine context for questions and commands. According to one embodiment of the invention, criteria handlers 152 include parsing routines that are specialized to recognize particular parts of speech, such as times, locations, movie titles, and other parts of speech. The criteria handlers 152 may identify matching phrases and extract semantic attributes from the phrases. Both the system agent 150 and the domain agents 156 may use the criteria handlers 152. The various domain agents 156 may use the services of the system agent 150 and of other, typically more specialized, domain agents 156. The system agent 150 and the domain agents 156 may use the services of the agent library 158, which contains utilities for commonly used functions. According to one embodiment of the invention, the agent library may be a

dynamic link library that implements one or more agents. The agent library may include utilities for text and string handling, network communications, database lookup and management, fuzzy and probabilistic evaluation, text to speech formats, and other utilities.

[0109] Domain agents 156 may be data-driven, scripted or created with compiled code. A base of generic agent may be used as the starting point for data-driven or scripted agents. Agents created with compiled code are typically built into dynamically linkable or loadable libraries. Developers of agents can add new functionality to the agent library 158 as required. Details of agent distribution and update, and agent creation or modification are discussed in sections below.

[0110] According to another embodiment of the invention, capabilities are provided to distribute and update system agents 150, domain agents 156, agent library 158 components, databases 102, and context description grammar 112 over wireless or wired networks 136, including IP networks and dial-up networks using the update manager 104. The network interface 116 may provide connections to one or more networks. The update manager 104 may also manage the downloading and installation of core system updates. The agent manager 154 may perform license management functions for the domain agents and the databases. The update manager 104 and agent manager 154 may perform these functions for all agents and database content including, agents and content available to all users or agents and/or content available to selected users. Examples of agent and database components added or updated on a periodic basis include:

- agents for new domains;
- additional domain knowledge for agents;

- new keywords for a domain, which can include names of politicians, athletes, entertainers, names of new movies or songs, etc. who have achieved recent prominence;
- links to a preferred set of information sources for the domains covered including links for, entertainment, news, sports, weather, etc.;
- updates to domain information based on, for example, changes to tax laws, company mergers, changing political boundaries;
- updates to content, including dictionaries, encyclopedias and almanacs; and
- other content and database components.

[0111] When a user requires or selects a new domain agent 156 or database element 102, the update manager 104 may connect to their source on the network 146 though the network interface 116, download and install the agent or data. To save system resources and to comply with any license conditions, the update manger 104 may uninstall agents that are no longer in use. In one embodiment of the invention, the update manager 104 may periodically query one or more sources of the licensed agents and database components to locate and download updates to agent executables, scripts or data as they become available. Alternatively, the agent sources may initiate the downloading of agent updates of the registered or licensed agents to the update manager as they become available.

[0112] The agent manager 154 may provide license management clients that are capable of executing most any license terms and conditions. When a particular agent 106 and/or database element 102 is selected based on a submitted command, the agent manager 154

verifies that the use of the agent or data element is within the allowed terms and conditions, and if so, invokes the agent or allows access to the data element. License management schemes that can be implemented through the agent manager 154 include outright purchase, subscription for updates, one time or limited time use. Use of shared agents and data elements (such as those down-loaded from web sites maintained by groups of domain experts) may also be managed by the agent manager 154.

[0113] If questions or commands do not match an agent that is currently loaded on the system, the agent manager 154 may search the network 146 through the network interface 116 to find a source for a suitable agent. This process may be triggered, for example, when a query is made in a domain for which an agent is not available, when a new device is added to a mobile structure, or when the behavior of a mobile device is updated. Once located, the agent can be loaded under the control of the update manager 104, within the terms and conditions of the license agreement, as enforced by the agent manager.

[0114] New commands, keywords, information, or information sources can be added to any domain agent 156 by changing agent data or scripting. These configuration capabilities may allow users and content developers to extend and modify the behavior of existing domain agents 156 or to create new domain agents 156 from a generic agent without the need to create new compiled code. Thus, the modification of the domain agents 156 may range from minor data-driven updates by even the most casual users, such as specifying the spelling of words, to development of complex behavior using the scripting language as would typically be done by a domain expert. The user can create and manage modifications to domain agents 156 through speech interface commands or using non-speech interface 114. User-specific modifications of domain agents 156 are

stored in conjunction with the user's profile 110 and accessed by the domain agent 156 at run-time.

[0115] The data used to configure data driven agents 156 may be structured in a manner to facilitate efficient evaluation and to help developers with organization. This data is used not only by the agent, but also in the speech recognition engine 120, the text to speech engine 124, and the parser 118. Examples of some major categories of data include:

1. Content packages may include questions or commands. Each command or question or group of commands or questions may include contexts used for creation of one or more requests. The domain agent 156 may pass a context description grammar expression to the parser 118 for evaluation of a context or question. An initial or default context is typically supplied for each command or question. The command or question includes a grammar for the management and evaluation of the context stack.

2. Parameters and other operating data on devices that are under control of the natural language speech interface. The domain agent 156 may use this data and parameters to determine how to execute a command, how to formulate the command string for the parser 118, determine if the command is feasible, and determine if the command can be executed within safety and operating limits.

3. Page lists or pointers to other local or network content sources. For each page or content source, there may be a pointer (e.g. URL, URI, or other pointer) to the page or source. Each page may have specific scraping information used to

extract the data of interest. The scraping information may include, for example, matching patterns, HTML or other format parsing information.

4. A response list, determining the response of the domain agent 156 to a particular command or question given the context, the user profile and the information retrieved. Responses may include diagnostic error messages or requests for more information if the question or command cannot yet be resolved from the known information. Responses can be based on or be dependent on thresholds or probabilistic or fuzzy weights for the variables.

5. Substitution lists that include variable substitutions and transformations, often applied by the agents 150, 156 in the formatting of requests and results. For example, a stock domain specific agent 156 would use a substitution list of company trading symbols, company names and commonly used abbreviations. Substitutions and transformations can be performed on commands and questions to create precise queries, which can be applied against one or more information sources or to results for creating more meaningful output to the user. Substitution lists also include information for optimally dealing with structured information, such as HTML formatted page parsing and evaluation.

6. Personalities used for responses. Personalities can be constructed by combining multiple traits in a weighted manner. Weights can be specified for each agent's domain area to create one or more specific personalities. Examples of personality traits include, sarcasm, humor, irritation, and sympathy, and other traits.

7. Public and user specific parameters for sources, substitutions, transformations, variables or criteria. The public parameter lists are part of the agent package 156. The user specific parameters are included in the user profile 110.

[0116] Commands and questions are interpreted, requests formulated, responses created and results presented can be based on the user's personal or user profile 110 values. Personal profiles may include information specific to the individual, their interests, their special use of terminology, the history of their interactions with the system, domains of interest, or other factors. The personal profile data can be used by the agents 106, the speech recognition engine 120, the text to speech engine 124, and the parser 118. Preferences can include, special (modified) commands, past behavior or history, questions, information sources, formats, reports, alerts or other preferences. User profile data can be manually entered by the user and/or can be learned by the system based on user behavior. User profile values can include: 1) spelling preferences; 2) date of birth for user, family and friends; 3) income level; 4) gender; 5) occupation; 6)location information such as, home address, neighborhood, and business address, paths traveled, locations visited; 7) vehicle type or types; 8) vehicle operator certifications, permits or special certificates; 9) history of commands and queries; 10) telecommunications and other service providers and services; 11) financial and investment information; 12) synonyms (i.e., a nick name for someone, different terms for the same item); 13) special spelling; 14) keywords; 15) transformation or substitution variables; 16) domains of interest; or, 17) other values.

[0117] End users may use the data driven agent 156 extension and modification facilities and values stored in user profiles 110 to create special reports, packages of queries, alerts and output formats. A single alert or report can be configured to use multiple data sources and other variables (i.e., time, location, measured value) value to determine when alerts should be sent. For example, an alert can be generated by sampling a stock price every 15 minutes and sending an alert if the price drops below some value. In another example, an alert may be generated when a particular condition or combination of conditions occur for the vehicles. Alerts and reports can be directed to a local or remote output.

[0118] To create a report, the user may first specify a set of commands or questions. Next, the user can create or select a format for the report. Finally the user may name the report. A report can have variable parameters. For example, a user may create a company stock report and execute the report by stating its name and the company name, which gives the user selected information in a specified format for that company. In another example, a user can create a "morning" report, which presents selected multimedia information from different sources (news, sports, traffic, weather) in the order and formats desired. In yet another example, the user can create a report on the status of one or more vehicle systems. Alerts and reports can be created using only voice commands and responses, commands and responses through the graphical user interface 114, or a combination of the two. Reports can be run locally or remotely with respect to the vehicle. To create a report, alert, or other specialized behavior, the user performs a number of steps including: 1) specifying the command to run a report or alert; 2) specifying the question or questions, including keywords, used for a query; 3) setting the

criteria for running the report such as on command or when a particular condition is met; 4) defining preferred information sources; 5)defining preferences for order of result evaluation by source, value, and other parameters; 6) specifying the presentation medium for a report or alert, such as an email, the text to speech engine, a message to a pager, or a text and graphics display; and, 7) specifying the preferred format for the report, such as information to be presented, order of information to be presented, preferred abbreviations or other variable substitutions.

[0119] Filtering and noise elimination may be important in facilitating the various functionalities of system 90 and may improve operation in noisy mobile environments. Recognition and parsing of the user's speech is implemented with good signal to noise ratio at the input to the speech recognition engine 120. To provide acceptable results, a set of acoustic models, an array microphone 134, a filter 132, or other components, may be employed. If a good signal to noise ratio cannot be achieved, a noise identification algorithm may be used and the appropriate acoustic model, for example, one that has been trained in conditions similar to the identified noise, may be selected. According to one embodiment of the invention, the microphone array, filters and speech coder 138 are physically separated from the main unit 98 into a speech unit 128, and connected using a wireless link. Since bandwidth on a wireless connection is at a premium, the speech coder dynamically adapts the digitization rate and compression of the captured speech.

[0120] Some embodiments of the invention may use one or more arrays of microphones 134 to provide better directional signal capture and noise elimination than can be achieved with a single microphone. The microphone array can be one-dimensional (a linear array) or two-dimensional (a circle, square, triangle or other suitable shape). The

beam pattern of the array can be fixed or made adaptive though use of analog or digital phase shifting circuitry. The pattern of the active array is steered to point in the direction of the one or more users speaking. At the same time, nulls can be added to the pattern to notch out point or limited area noise sources. The use of the array microphone also helps reduce the cross talk between output from the text to speech engine 124 through the speaker 136 or from another user talking and detection of the user's speech.

[0121] The invention may use an analog or digital filter 132 between the array microphone or conventional microphone 134 and the speech coder 138. The pass band of the filter can be set to optimize the signal to noise ratio at the input to the speech recognition engine 120. In some embodiments, the filter is adaptive, using band shaping combined with notch filtering to reject narrow-band noise. One embodiment employs adaptive echo cancellation in the filter. The echo cancellation helps prevent cross talk between output from the text to speech engine and detection of the user's speech as well as suppression of environmentally caused echoes. Algorithms comparing the background noise to the signal received from the users speech may be used to optimize the band-shaping parameters of the adaptive filter.

[0122] The speech received by the array microphone 134 and passed through the filter 132 may be sent to the speech digitizer or coder 138. The speech coder may use adaptive lossy audio compression to optimize bandwidth requirements for the transmission of the coded speech to the speech recognition engine 120 over a wireless link. The lossy coding is optimized to preserve only the components of the speech signal required for optimal recognition. Further, the lossy compression algorithms that may be used are designed to prevent even momentary gaps in the signal stream, which can cause errors in the speech

recognition engine. The digitized speech may be buffered in the coder and the coder may adapt the output data rate to optimize the use of the available bandwidth. The use of the adaptive speech coder is particularly advantageous when a band-limited wireless link is used between the coder and the speech recognition engine.

[0123] The microphone can be complemented with an analog or digital (i.e., Voice over IP) speech interface. This interface allows a remote user to connect to the system and interact with it in the same manner possible if they were physically present.

[0124] In an alternative embodiment, the array microphone can be replaced by a set of physically distributed microphones or headsets worn by the users. The distributed microphones can be placed in different parts of a vehicle, different parts of a room or in different rooms of a building. The distributed microphones can create a three-dimensional array to improve signal to noise ratio. The headset can use a wireless or wired connection.

[0125] While the invention is intended to be able to accept most any natural language question or command, ambiguity may be a problem. To assist users formulate concise questions and commands, the system can support a voice query language. The language may be structured to allow a variety of queries and commands with minimal ambiguity. Thus, the voice query language helps users clearly specify the keywords or contexts of the question or command along with the parameters or criteria. The language can provide a grammar to clearly specify the keyword used to determine the context and present a set of one or criteria or parameters. A user asking a question or stating a command in the voice query language may nearly always be guaranteed to receive a response.

[0126] The voice query language may be sensitive to the contents of the context stack, wherein a context defines a set of questions that can be activated or deactivated during a conversation. According to one embodiment, each agent may designate one context to be the root context that defines base algorithms that the agent implements. Thus, follow-on questions can be asked using an abbreviated grammar, since key words and criteria can be inherited from the context stack. For example, the user can simply ask about another keyword if the criteria of the question remain constant.

[0127] The system 90, may provide built in training capabilities to help users learn the best methods to formulate their questions and commands. The interactive training allows users to audibly or visibly see the machine interpretation of their queries and provides suggestions on how to better structure a query. Using the interactive training, users can quickly become comfortable with the voice query language and, at the same time, learn how to optimize the amount of information required with each step of a dialog.

[0128] The output of the speech coder 122 may be fed to the speech recognition engine 120. The speech recognition engine 120 recognizes words and phrases, using information in the context description grammar 112 and passes these to the parser 118 for interpretation. The speech recognition engine 120 may determine the user's identity by voice and name for each utterance. Recognized words and phrases may be tagged with this identity in all further processing. Thus, as multiple users engage in overlapping sessions, the tags added by the speech recognition engine 120 to each utterance allows other components of the system 90 to tie that utterance to the correct user and dialog. The user recognition capability may further be used as a security measure for

applications, such as auctions or online shopping, where this is required. Voice characteristics of each user may be contained in the user profile 110.

[0129] According to one embodiment of the invention, users may start a dialog with the system 90 when they first address it. This can be done by speaking a generic word ("computer") or addressing a specific name ("Fred"), which may be generally tied to a system personality 108. Once the user starts the dialog, it may be recognized by the speech recognition engine 120, using unique characteristics of the user's speech. At the end of a dialog or to interrupt a dialog, the user may utter a dismissal word ("good bye").

[0130] According to another embodiment of the invention, the system 90 may employ a speech recognition engine 124 that gains improved word recognition accuracy using data from context description grammar 112, user profiles 110, and the agents 106, among other components. At the same time, the fuzzy set possibilities or prior probabilities for the words in the context description grammar may be dynamically updated to maximize the probability of correct recognition at each stage of the dialog. The probabilities or possibilities may be dynamically updated based on a number of criteria including the application domain, the questions or commands, contexts, the user profile and preferences, user dialog history, the recognizer dictionary and phrase tables, and word spellings, among other criteria.

[0131] For uncommon words or new vocabulary words, the user may be given the option to spell the words. The spelling can be done by saying the names or the letters or using a phonetic alphabet. The phonetic alphabet can be a default one or one of the user's choosing.

[0132] Alternatively, when a user submits a word that is not recognized at all or is not correctly recognized by the speech recognition engine 120, then the user may be asked to spell the word. The speech recognition engine 120 determines this condition based on confidence level for the scoring process. The word may be looked up in a dictionary and the pronunciation for the word is added to either the dictionary, the agent 106, or the user's profile 110. The word pronunciation can then be associated with the domain, the question, the context and the user. Through this process, the speech recognition engine learns with time and improves in accuracy. To assist users in spelling words, an individualized phonetic alphabet can be used. Each user can modify the standard phonetic alphabets with words, which they can remember more easily.

[0133] Once the words and phrases have been recognized by the speech recognition engine 120, the tokens and user identification may be passed to the parser 118. The parser examines the tokens for the questions or commands, context and criteria. The parser may determine a context for an utterance by applying prior probabilities or fuzzy possibilities to keyword matching, user profile 110, dialog history, and context stack contents. The context of a question or command may determine the domain and, thereby, the domain agent 156, if any, to be invoked. For example, a question with the keywords "temperature" implies a context value of weather for the question. Within a different dialog, the keyword "temperature" can imply a context for a measurement. The parser dynamically receives keyword and associated prior probability or fuzzy possibility updates from the system agent 150 or an already active domain agent 156. Based on these probabilities or possibilities the possible contexts are scored and the top one or few are used for further processing.

[0134] The parser 118 uses a scoring system to determine the most likely context or domain for a user's question and/or command. The score is determined from weighing a number of factors including, the user profile 110, the domain agent's data content and previous context. Based on this scoring, the system 90 invokes the correct agent. If the confidence level of the score is not high enough to ensure a reliable response, the system 90 may ask the user to verify whether the question and/or command is correctly understood.

[0135] In general, the question that is asked by the system 90 may be phrased to indicate the context of the question including all criteria or parameters. For example, the question can be in the form of: "Did I understand that you want such-and-such" If the user confirms that the question is correct the system proceeds to produce a response. Otherwise, the user can rephrase the original question, perhaps adding additional information to remove ambiguity, or the system can ask one or more questions to attempt to resolve the ambiguity.

[0136] Once the context for the question or command has been determined, the parser 118 can invoke the correct agent 156, 150. To formulate a question or command in the regular grammar used by agents, the parser will preferably determine required and optional values for the criteria or parameters. These criteria may have been explicitly supplied by the user or may need to be inferred. The parser may make use of the criteria handlers 152 supplied by the system agent. The criteria handlers can provide context sensitive procedures for extracting the criteria or parameters from the user's question or command. Some criteria may be determined by executing algorithms in the agent, while others may be determined by applying probabilistic or fuzzy reasoning to tables of

possible values. Prior probabilities or fuzzy possibilities and associated values may be received from a number of sources including, for example, the history of the dialog, the user profile 110, and the agent. Based on user responses, the prior probabilities or fuzzy possibilities may be updated as the system learns the desired behavior. For a weather context, examples of criteria include, location, date and time. Other criteria can include command criteria (i.e., yes/no, on/off, pause, stop), and spelling. Special criteria handlers are available from the system agent for processing lists, tables, barge-in commands, long strings of text and system commands.

[0137] The criteria handlers 152 can operate iteratively or recursively on the criteria extracted to eliminate ambiguity. This processing may help reduce the ambiguity in the user's question or command. For example, if the user has a place name (or other proper noun) in their utterance the parser 118 can use services of the domain agent 156 to look up tables in the databases 102 for place names or can attempt to determine which word is the proper noun from the syntax of the utterance. In another example, the user asks, "what about flight one hundred and twenty too?" The parser and domain agent use flight information in the database and network information along with context to determine the most plausible interpretation among; flight 100 and flight 20 also, flight 100 and flight 22, flight 122, etc.

[0138] Once the context and the criteria are determined, the parser 118 may form the question or command in a standard format or hierarchical data structure used for processing by the agents 150, 156. The parser 118 may fill in all required and some optional tokens for the grammar of the context. Often the tokens must be transformed to values and forms acceptable to the agents. The parser obtains the required

transformations from the agents, dialog history or user profile 110. Examples of transformations or substitutions performed by the parser on tokens include: 1) substituting a stock symbol for a company name or abbreviation; 2) substituting a numerical value for a word or words; 3) adding a zip code to an address; and, 4) changing a place or other name to a commonly used standard abbreviation.

[0139] The agents 150, 156 may receive a command or question once the parser 118 has placed it in the required standard format. Based on the context, the parser can evoke the correct agent to process the question or command.

[0140] Commands can be directed to the system or to an external entity. System commands are generally directed to the system agent 150. Commands for external entities are generally processed by a domain agent 156, which includes the command context and behavior for the external entity.

[0141] Specific questions may be generally directed to one of the domain agents 156. The real-time selection of the correct agent allows the invention to dynamically switch contexts. Based on the question, command or context and the parameters or criteria, the domain agent may create one or more queries to one or more local or external information sources. Questions can be objective or subjective in nature. Results for objective questions can often be obtained by structured queries to one or more local or network information sources. Even for objective questions, the system may need to apply probabilistic or fuzzy set analysis to deal with cases of conflicting information or incomplete information. Information to answer subjective questions is generally obtained by one or more ad-hoc queries to local or network data sources, followed by probabilistic or fuzzy set evaluation of the one results to determine a best answer.

[0142] Once the domain agent 156 has formulated the one or more queries, they may be sent to local and/or network information sources. The queries may be performed in an asynchronous manner to account for the fact that sources respond at different speeds or may fail to respond at all. Duplicate queries can be sent to different information sources to ensure that at least one source responds with a useful result in a timely manner. Further, if multiple results are received in a timely manner, they can be scored by the system to determine which data is most reliable or appropriate. Examples of data sources accommodated include, HTTP data sources, sources with meta-data in various formats including XML, measurement data from sensors using various formats, device 32 setting parameters, entertainment audio, video and game files including MP3, databases using query languages and structured responses such as SQL, and other data sources.

[0143] The local information sources can be stored in one or more system databases 102 or can be on any local data storage such as a set of CDs or DVDs in a player or other local data storage. In other cases, local information can be obtained from vehicle system settings or measurement devices. Network information sources can be connected to, the control and device interfaces 30, the data interfaces 26, the Internet 42 or other network and accessed through a series of plug-ins or adaptors, known a pluggable sources, in the network interface 116. The pluggable sources are capable of executing the protocols and interpreting the data formats for the data sources of interest. The pluggable source provides information scrapping forms and procedures for each source to the domain agents 156. If a new type of data source is to be used a new plug-in or adaptor can be added to the appropriate interface.

[0144] The domain agent 156 can evaluate the results of the one or more queries as they arrive. The domain agent may score the relevance of the results based on results already received, the context, the criteria, the history of the dialog, the user profile 110 and domain specific information using probabilistic or fuzzy scoring techniques. Part of the dialog history is maintained in a context stack. The weight of each context for the scoring may be based on the relevance of one context to another and the age of the contexts. Other scoring variables can be associated through the context stack. Contexts can also be exclusive, so that previous contexts have no weight in the scoring.

[0145] Based on the on-going scoring processes, the domain agent 156 may determine if a single best answer can be extracted. For most questions, the desired result may include a set of tokens that may be found to formulate an answer. Once a value has been found for each of these tokens, the results are ready for presentation to the user. For example, for a question on weather, the tokens can include the date, day of week, predicted high temperature, predicted low temperature, chance of precipitation, expected cloud cover, expected type of precipitation and other tokens. Results processed in this manner may include error messages. For subjective questions, this determination is made by determining a most likely answer or answers, extracted by matching of the results received. If no satisfactory answer can be inferred from the results of the query, the agent can do one of the following:

1. Ask the user for more information, typically through the speech interface, and based on the results obtained formulate new queries. This approach is applied when an irresolvable ambiguity arises in the formulation of a response.

2. Formulate new queries based on the results received from the first set of queries. This approach is typically applied in cases where the responses received do not include all the required information. Information sources to queries can be inferred from the results already obtained (i.e., links in an HTML document or measurements or settings from other devices 32) or from other sources. Using this approach one or more sets of queries and responses can be chained without the need for action by the user.

3. Wait for additional queries to return results.

[0146] In any case, the domain agent 156 may continue to make queries and evaluate results until a satisfactory response is constructed. In doing so, the agent can start several overlapping query paths or threads of inquiry, typically mediated by the event manager 100. This technique, combined with the use of asynchronous queries from multiple data sources provides the real-time response performance required for a natural interaction with the user.

[0147] The domain agent 156 may apply conditional scraping operations to each query response as it is received. The conditional scraping actions may depend on the context, the criteria, user profile 110, and domain agent coding and data. For each token to be extracted a scraping criteria 152 can be created using the services of the system agent 150. The scraping criteria may use format specific scraping methods including, tables, lists, text, and other methods. One or more scraping criteria can be applied to a page or results set. Once additional results are received, the domain agent can create new scraping criteria to apply to results already acquired. The conditional scarping process

removes extraneous information, such as graphics, which need not be further processed or stored, improving system performance.

[0148] Specific commands are generally directed to one of the domain agents 156. The real-time selection of the correct agent allows the invention to dynamically switch contexts. Command oriented domain agents 156 evaluate the command and the state of vehicle systems, system capabilities, and measurements to determine if the command can be executed at all or if doing so will exceed operating or safety limits. If the command is ambiguous or cannot be executed for some other reason, the system may ask the user for more information or may suggest what the problem is and a likely approach to the solution. The domain agent may format the command for the specific device 32 and control and device interface 30. This formatting may involve variable substitution, inference of missing values and other formatting. Variable substitution and inference depends on the command context, the user profile 110, command history, state of vehicle systems and measured values, and other factors. A complex command can result in more atomic commands being sent to multiple devices, perhaps in a sequence. The sequence and nature of subsequent commands may depend on the previous commands, results of pervious commands, device settings and other measurements. As a command is executed, measurements are made and results collected to determine if the execution was correct and the desired state or states were reached.

[0149] Once the domain agent 156 has created a satisfactory response to a question, or to a command, the agent may format that response for presentation. Typically, the domain agent can format the response into the markup format used by the text to speech engine 124. The domain agent may format the result presentation using available format

templates and based on the context, the criteria, and the user profile 110. The domain agent may perform variable substitutions and transformations to produce a response best understood and most natural to the user. The domain agent may vary the order of presentation of tokens and the exact terminology used to create a more natural response to the user. The domain agent may also select the presentation personality 108 to be used.

[0150] For both command and query responses, the domain agent 156 may select the presentation template, determine order of presentation for tokens and determine variable substitutions and transformations using probabilistic or fuzzy set decision methods. The template used to form the presentation can be from the domain agent itself or from the user profile 110. The user profile can completely specify the presentation format or can be used to select and then modify an existing presentation format. Selection and formatting of presentation template can also depend on the presentation personality 108. At the same time, the characteristics of the personality used for the response are dynamically determined using probabilities or fuzzy possibilities derived from the context, the criteria, the domain agent itself and the user profile 110.

[0151] The domain agent 156 may apply a number of transformations to the tokens before presentation to the user. These variable substitutions and transformations may be derived from a number of sources including, domain information carried by the agent, the context, the token values, the criteria, the personality 108 to be used, and the user profile 110. Examples of variable substitutions and transformations include: 1) substitution of words for numbers; 2) substitution of names for acronyms or symbols (i.e., trading symbols); 3) use of formatting information derived from the information sources (i.e., HTML tags); 4) nature of the response including, text, long text, list, table; 5) possible

missing information or errors; 6) units for measurement (i.e., English or metric); and, 7) preferred terminology from the user profile or presentation personality 108.

[0152] The invention may provide special purpose presentation capabilities for long text strings, tables, lists and other large results sets. Domain agents 156 may use special formatting templates for such results. The system agent 150 can provide special criteria handlers 152 for presentation and user commands for large results sets. The presentation templates used by the domain agents for large results sets typically include methods for summarizing the results and then allowing the user to query the result in more detail. For example, initially only short summaries, such as headlines or key numbers, are presented. The user can then query the results set further. The criteria handlers provide users with the capability to browse large results sets. Commands provided by the criteria handlers for large results sets include, stop, pause, skip, rewind, start, and forward.

[0153] Some information, in formats such as video, pictures and graphics, may be best presented in a displayed format. The domain agents 156 apply suitable presentation templates in these cases and present the information through the non-speech interface 114. The system agent 150 provides special criteria handlers 152 for presentation and user commands for display presentation and control.

[0154] Although particular embodiments of the invention have been shown and described, it will be understood that it is not intended to limit the invention to the embodiments that are disclosed and it will be obvious to those skilled in the art that various changes and modifications may be made without departing from the spirit and scope of the invention. Thus, the invention is intended to cover alternatives,

modifications, and equivalents, which may be included within the spirit and scope of the invention as defined by the claims.

We claim:

1. A mobile device for processing speech and non-speech communications, comprising:

an identification module that identifies a user that communicates with the mobile device;

a matching module that matches the identified user to one or more profiles;

a transcription module that transcribes the speech and the non-speech communications to create a speech-based textual message and a non-speech-based textual message, wherein the transcription module accesses the one or more profiles;

a merging module that merges the speech-based textual message and the non-speech-based textual message to generate a query;

a search module that searches the query for text combinations;

a comparison module that compares the text combinations to entries in a context description grammar;

a plurality of domain agents that are associated with the context description grammar;

a scoring module that provides relevance scores based on results from the comparison module;

a domain agent selector that selects domain agents based on results from the scoring module; and

a response generating module that communicates with the selected domain agents to obtain content that is gathered by the selected domain agents and that generates a response from the content, wherein the content is arranged in a selected order based on results from the scoring module.

2. The mobile device according to claim 1, wherein the response generating module generates an aggregate response that includes the content gathered by the selected domain agents.

3. The mobile device according to claim 1, wherein the identification module supports multiple users that access the mobile device during a same session.

4. The mobile device according to claim 3, wherein the session may include an overlapping session or an interleaved session.

5. The mobile device according to claim 3, wherein the identification module verifies an identify of the multiple users based on voiceprint matching or password matching.

6. The mobile device according to claim 4, wherein, during the interleaved session, the mobile device processes one or more queries in an order of receipt.

7. The mobile device according to claim 1, wherein, during the interleaved session, the mobile device processes one or more queries based on an order determined by a length of the queries.

8. The mobile device according to claim 1, wherein the mobile device includes (i) a personal digital assistant, (ii) a cellular telephone, (iii) a portable computer, (iv) a desktop computer, or any combination of (i) to (iv).

9. The mobile device according to claim 1, wherein the mobile device receives follow-up speech and non-speech communications and wherein the transcription module transcribes the follow-up speech and non-speech communications to create a follow-up speech-based textual message and a follow-up non-speech-based textual message.

10. The mobile device according to claim 9, wherein the merging module merges the follow-up speech-based textual message and the follow-up non-speech-based textual message to generate a follow-up query.

11. The mobile device according to claim 1, further comprising a personality module that facilitates formatting the response.

12. The mobile device according to claim 1, wherein the mobile device is configured to communicate with a context stack that includes one or more contexts that are selected based on the query.

13. The mobile device according to claim 12, wherein the scoring module determines the one or more contexts based on at least applying prior probabilities or fuzzy possibilities to (i) keyword matching, (ii) user profiles, (iii) a dialog history, or any combination of (i) to (iii).

14. The mobile device according to claim 1, wherein at least one of the domain agents creates and directs a request to a local information source or a network information source.

15. The mobile device according to claim 1, wherein at least one of the domain agents creates and directs a command to a remote or local device.

16. The mobile device according to claim 10, wherein the follow-up query is associated with a same context as the query.

17. The mobile device according to claim 1, wherein the mobile device supports Internet browsing and wherein the generated query is used to conduct the Internet browsing.

18. The mobile device according to claim 1, wherein the mobile device supports multimodal communications.

19. The mobile device, comprising:

an object that is accessible by the mobile device;

an input device that receives speech and non-speech annotations corresponding to the object;

a transcription module that transcribes the speech and the non-speech annotations to create a speech-based textual message and a non-speech-based textual message; and

an association module that associates the object with the speech-based textual message and the non-speech-based textual message.

20. The mobile device according to claim 19, further comprising:

a classification module that classifies the speech-based textual message and the non-speech-based textual message; and

a searching module that searches the speech-based textual message and the non-speech-based textual message based on a search request.

21. The mobile device according to claim 19, wherein the association module associates the object with the speech and non-speech annotations.

22. The mobile device according to claim 21, further comprising:

a classification module that classifies the speech and non-speech annotations; and

a searching module that searches the speech and non-speech annotations based on a search request.

23. The mobile device according to claim 19, wherein the object includes digital media.

24. The mobile device according to claim 23, wherein the object includes a digital photograph, a calendar entry, an email message, an instant message, a phonebook entry, a voicemail entry or a digital movie.

25. The mobile device according to claim 19, wherein the association module associates the object to the speech and non-speech annotations, the speech-based textual message, and the non-speech-based textual message.

26. The mobile device according to claim 25, wherein the object is retrievable using (i) a voice command, (i) a text command, or a combination of (i) and (ii).

27. The mobile device according to claim 19, wherein the object is stored (i) in the mobile device, (ii) at a server, or a combination of (i) and (ii).

28. The mobile device according to claim 19, wherein the object includes metadata.

29. The mobile device according to claim 28, wherein the metadata includes global positioning system information, environmental information, or geographic information.

30. The mobile device according to claim 28, further comprising a metadata searching module that enables searching of the metadata.

31. A system, comprising:

a plurality of mobile devices that support multimodal communications, wherein two or more mobile devices are associated with a user; and

a context module that is coupled to the plurality of mobile devices, wherein a same context is maintained at the two or more mobile devices that are associated with the user.

32. The system according to claim 31, wherein the plurality of mobile devices comprise:

an identification module that identifies a user that communicates with the mobile device;

a matching module that matches the identified user to one or more profiles;

a transcription module that transcribes the speech and the non-speech communications to create a speech-based textual message and a non-speech-based textual message, wherein the transcription module accesses the one or more profiles;

a merging module that merges the speech-based textual message and the non-speech-based textual message to generate a query;

a search module that searches the query for text combinations;

a comparison module that compares the text combinations to entries in a context description grammar;

a plurality of domain agents that are associated with the context description grammar;

a scoring module that provides relevance scores based on results from the comparison module;

a domain agent selector that selects domain agents based on results from the scoring module; and

a response generating module that communicates with the selected domain agents to obtain content that is gathered by the selected domain agents and that generates a response from the content, wherein the content is arranged in a selected order based on results from the scoring module.

33. The system according to claim 31, wherein the context module is configured to broadcast the same information to two or more mobile devices and to receive a response from one of the mobile devices.

34. The system according to claim 31, wherein the context module broadcasts a first type of information and receives a second type of information.

35. The system according to claim 34, wherein first type of information and the second type of information include speech information or non-speech information.

36. The system according to claim 35, wherein the first type of information includes non-speech information that is presented on a graphical user interface and the second type of information includes speech information that is applied to search a network.

37. The system according to claim 36, wherein the first type of information and the second type of information correspond to the same context.

38. A method of processing speech and non-speech communications in a multimodal environment, comprising:

receiving the speech and non-speech communications;

identifying a user that provides the speech and non-speech communications;

matching the identified user to one or more profiles;

transcribing the speech and non-speech communications to create a speech-based textual message and a non-speech-based textual message, wherein the transcribing includes accessing the one or more profiles;

merging the speech-based textual message and the non-speech-based textual message to generate a query;

searching the query for text combinations;

comparing the text combinations to entries in a context description grammar;

accessing a plurality of domain agents that are associated with the context description grammar;

generating a relevance score based on results from comparing the text combinations to entries in the context description grammar;

selecting one or more domain agents based on results from the relevance score;

obtaining content that is gathered by the selected domain agents; and

generating a response from the content, wherein the content is arranged in a selected order based on results from the relevance score.

39. The method according to claim 38, further comprising generating an aggregate response that includes the content that is gathered by the selected domain agents.

40. The method according to claim 38, further comprising:

receiving a follow-up speech and non-speech communications;

transcribing the follow-up speech and non-speech communications to create a follow-up speech-based textual message and a follow-up non-speech-based textual message; and

merging the follow-up speech-based textual message and the follow-up non-speech-based textual message to generate a follow-up query.

41. The method according to claim 38, further comprising a personality module that communicates the response to a user.

42. The method according to claim 38, wherein the system supports multiple users during a same session.

43. The method according to claim 42, wherein the session may include an overlapping session or an interleaved session.

44. The method according to claim 42, wherein the multiple users are identified based on voiceprint matching or password matching.

45. The method according to claim 43, further comprising processing one or more queries in an order of receipt.

46. The method according to claim 43, further comprising processing one or more queries based on an order determined by a length of the queries.

47. The method according to claim 38, further comprising generating a context stack that includes one or more contexts that are selected based on the query.

48. The method according to claim 47, wherein the one or more contexts are generated based on applying prior probabilities or fuzzy possibilities to (i) keyword matching, (ii) user profiles, (iii) a dialog history, or any combination of (i) to (iii).

49. The method according to claim 38, further comprising conducting Internet browsing with the generated query.

ABSTRACT

A mobile system is provided that includes speech-based and non-speech-based interfaces for telematics applications. The mobile system identifies and uses context, prior information, domain knowledge, and user specific profile data to achieve a natural environment for users that submit requests and/or commands in multiple domains. The invention creates, stores and uses extensive personal profile information for each user, thereby improving the reliability of determining the context and presenting the expected results for a particular question or command. The invention may organize domain specific behavior and information into agents, that are distributable or updateable over a wide area network.

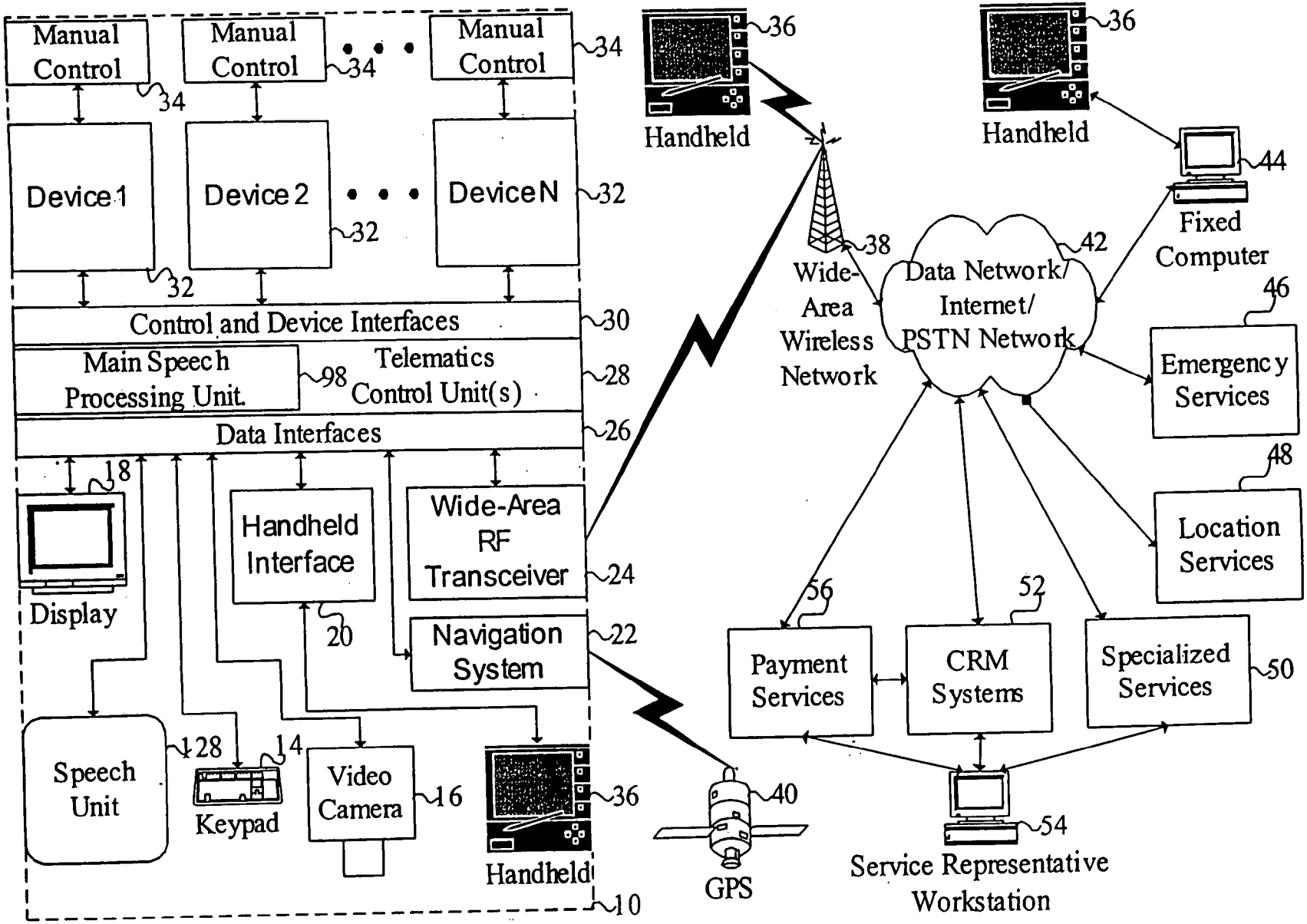


Figure 1

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Page 0098

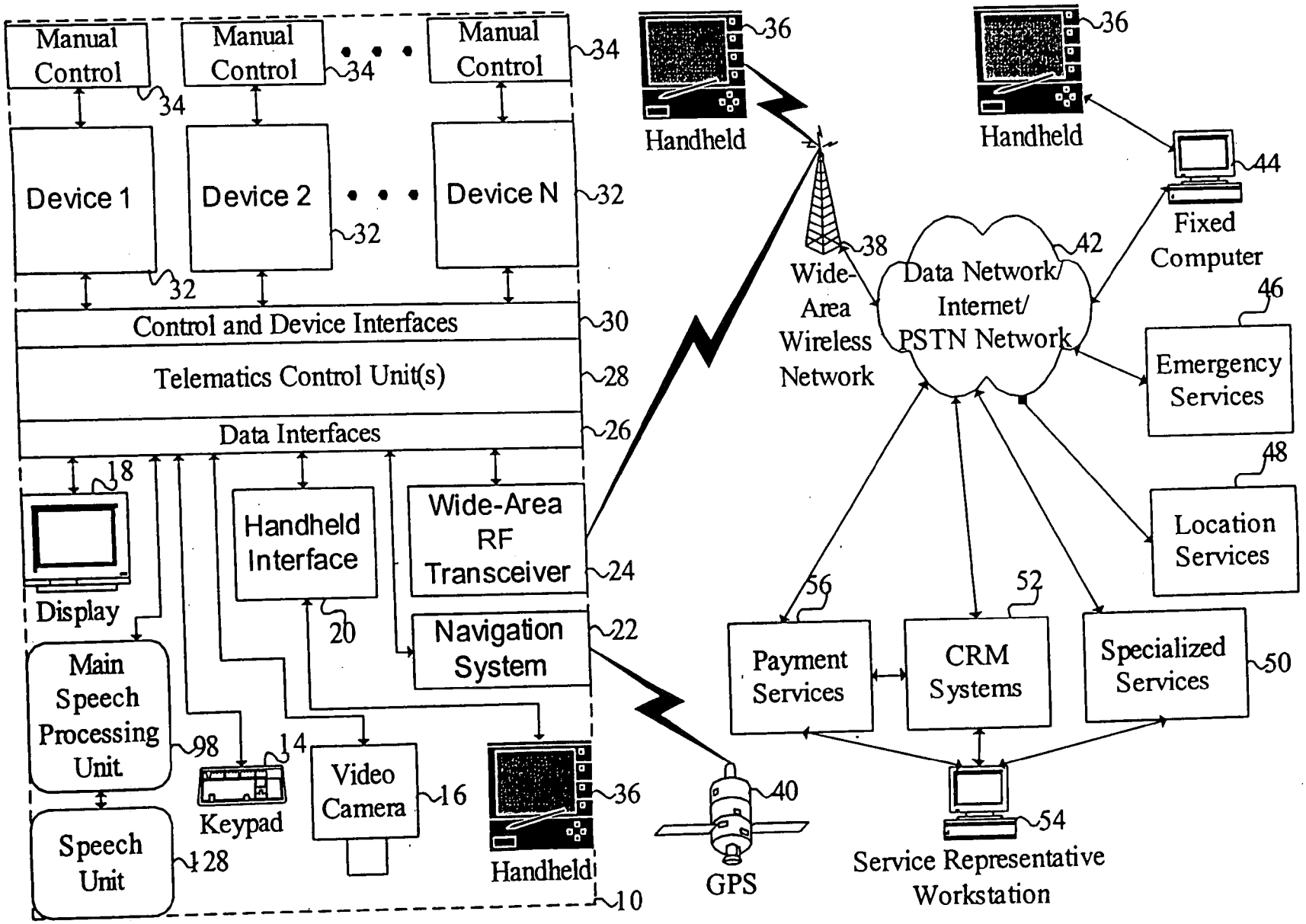


Figure 2

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Page 0099

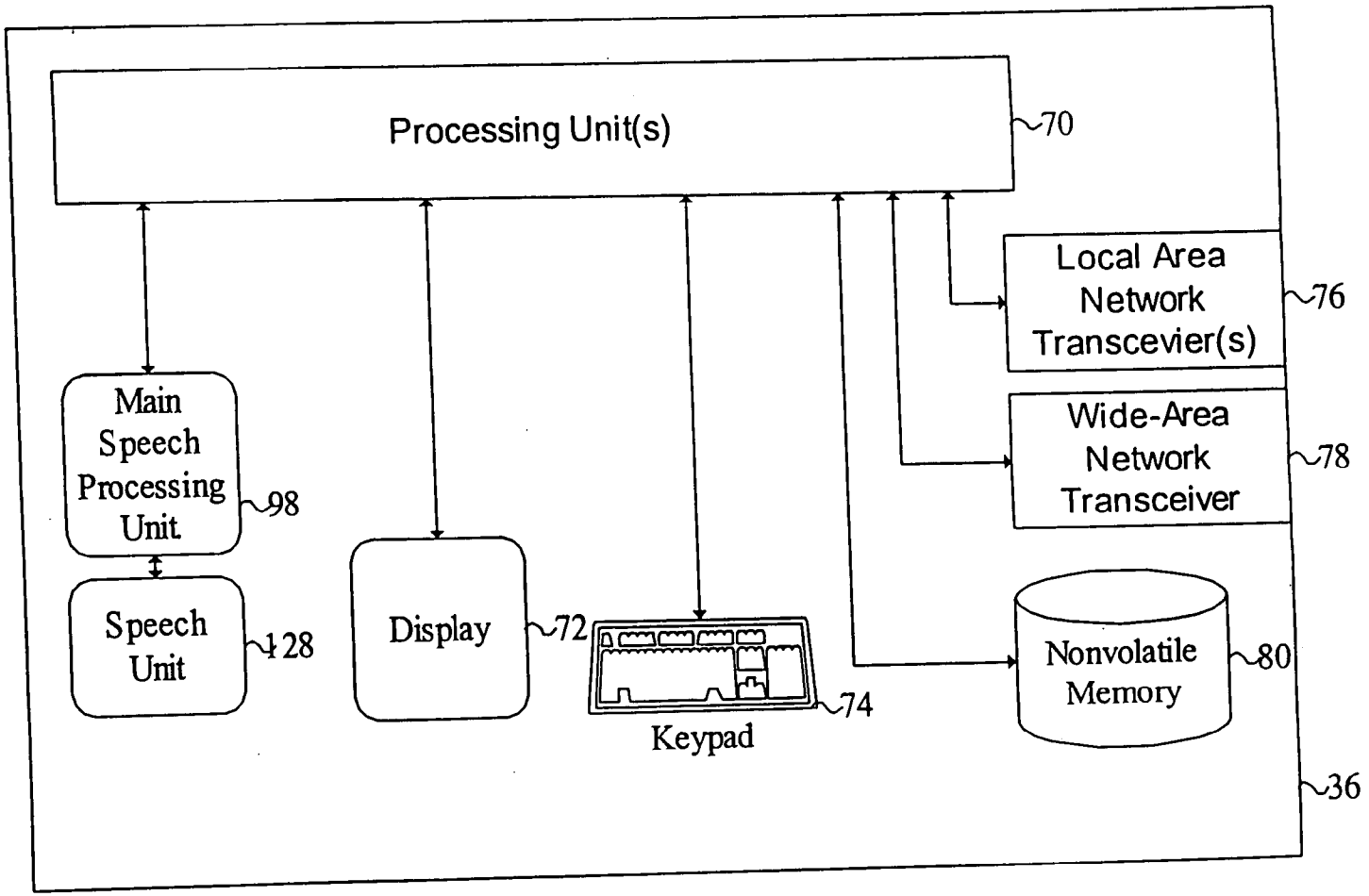


Figure 3.

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Page 00100

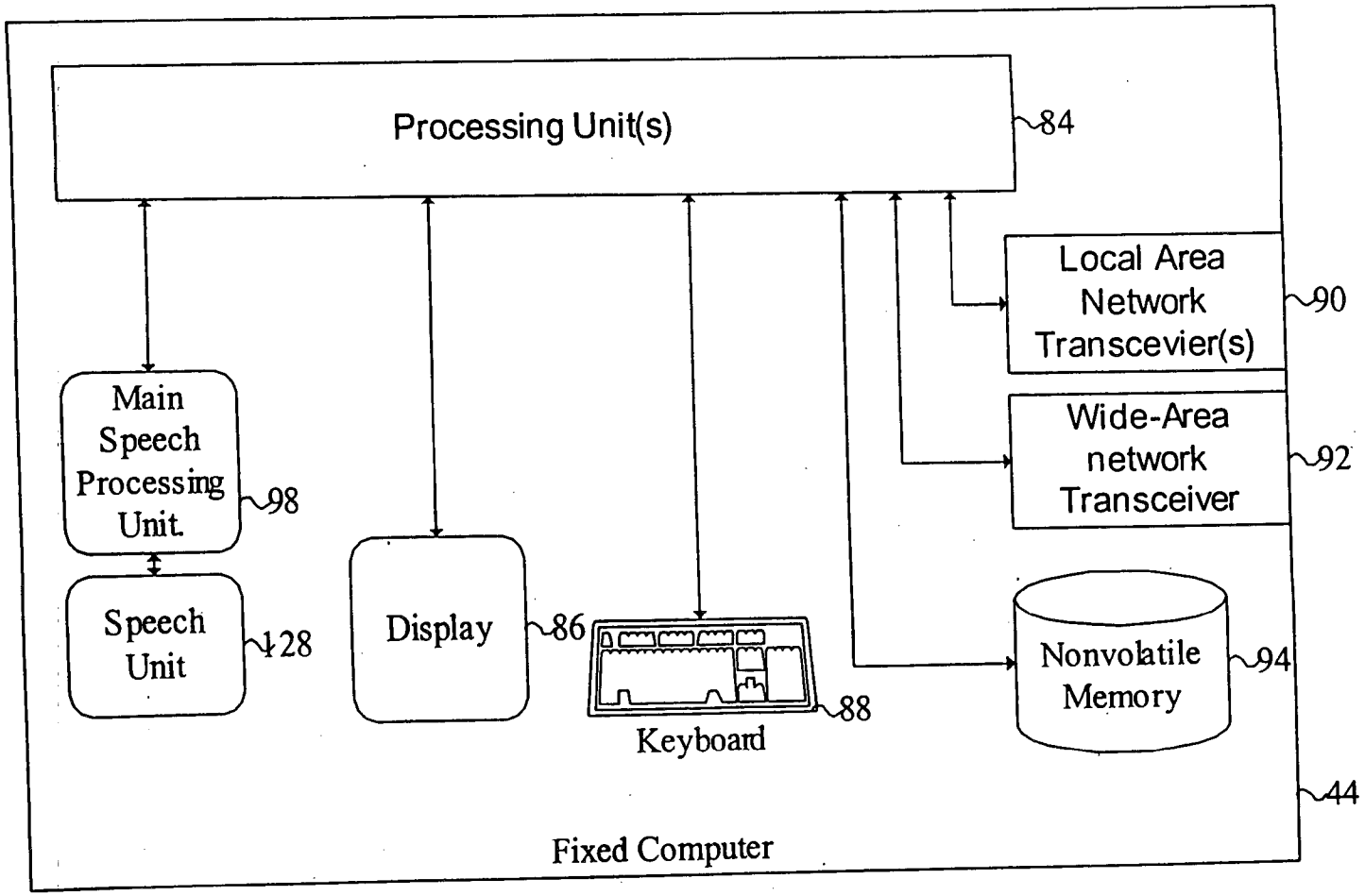
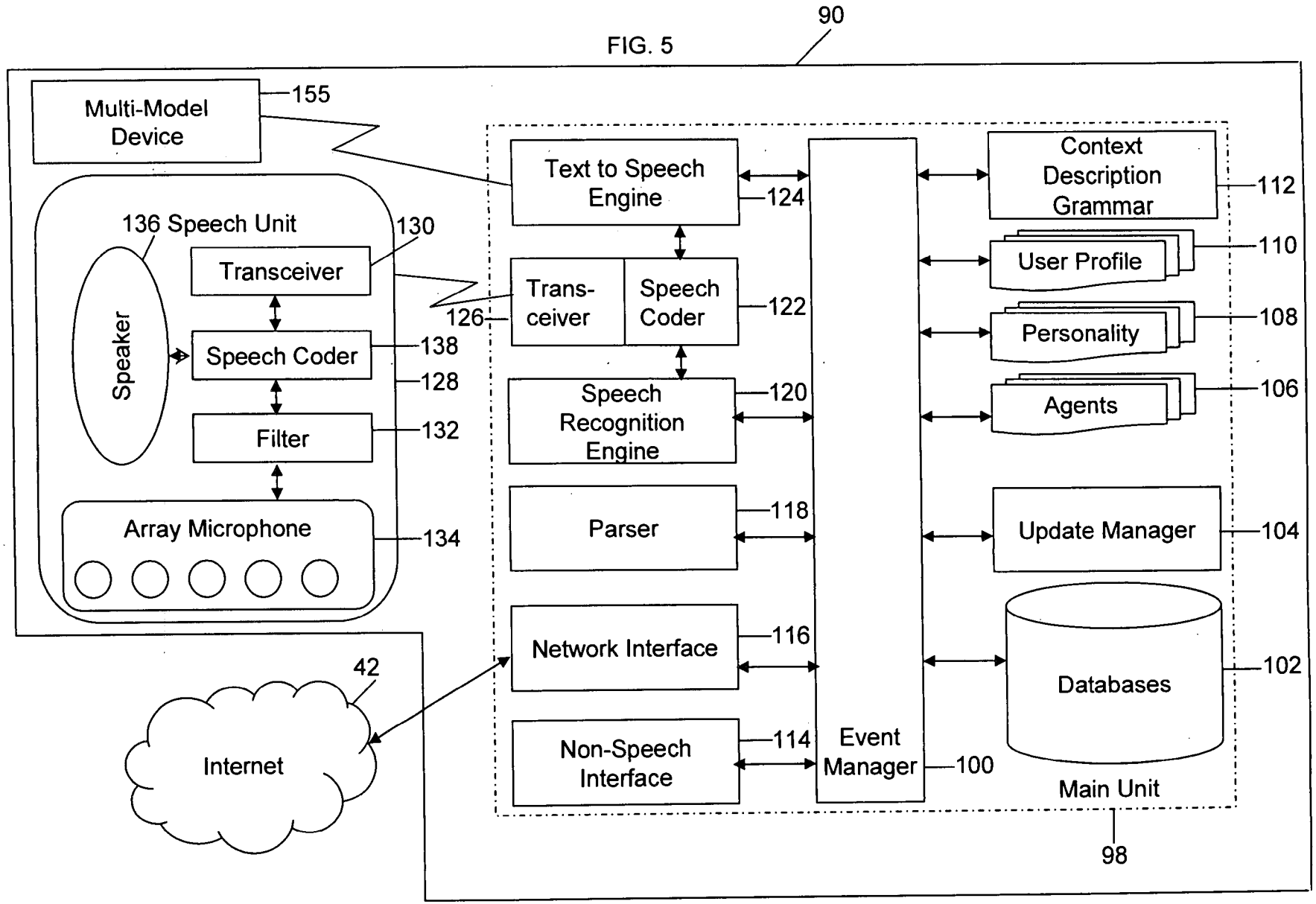


Figure 4

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Page 00101

FIG. 5



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Page 00102

FIG. 6

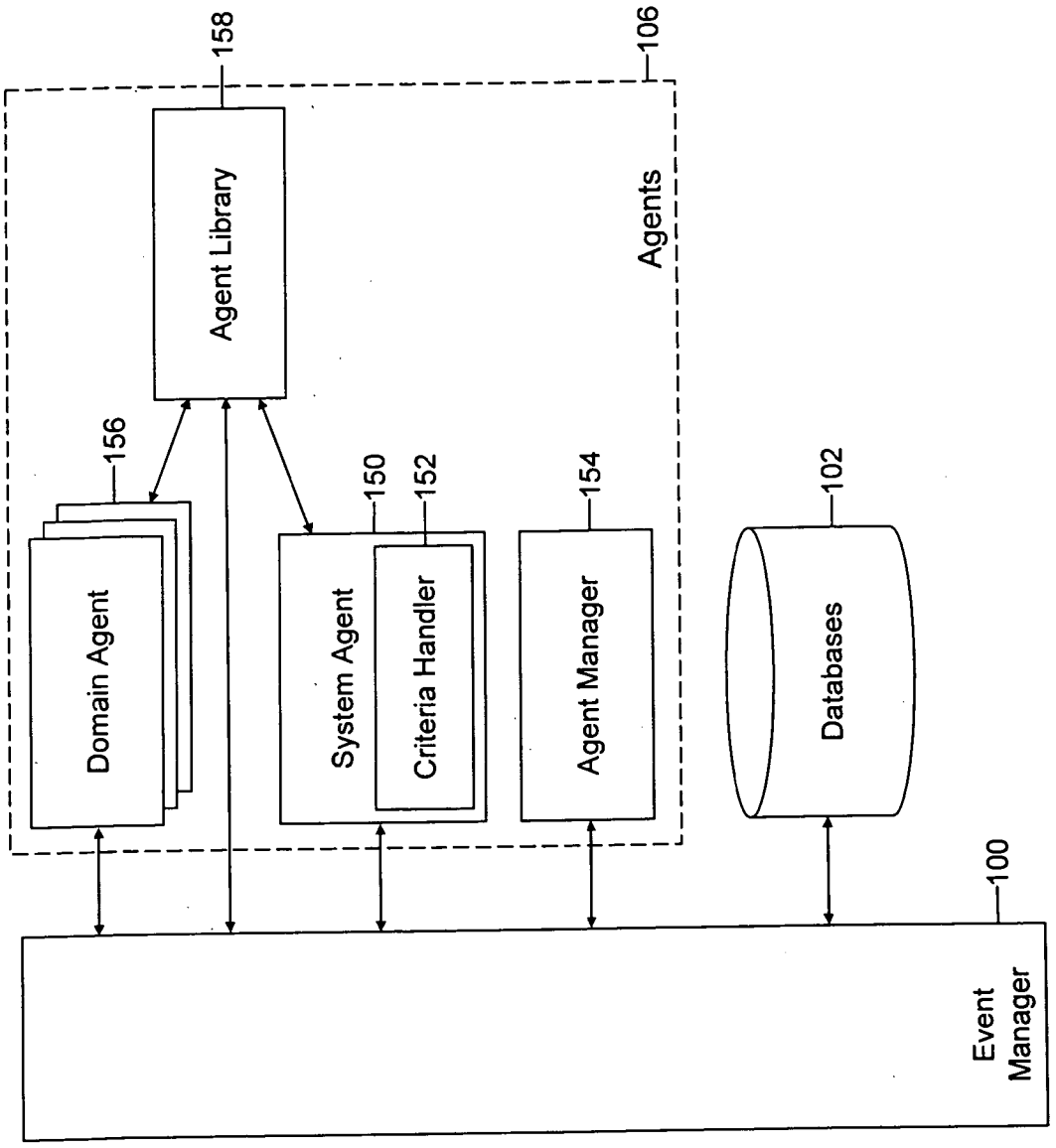
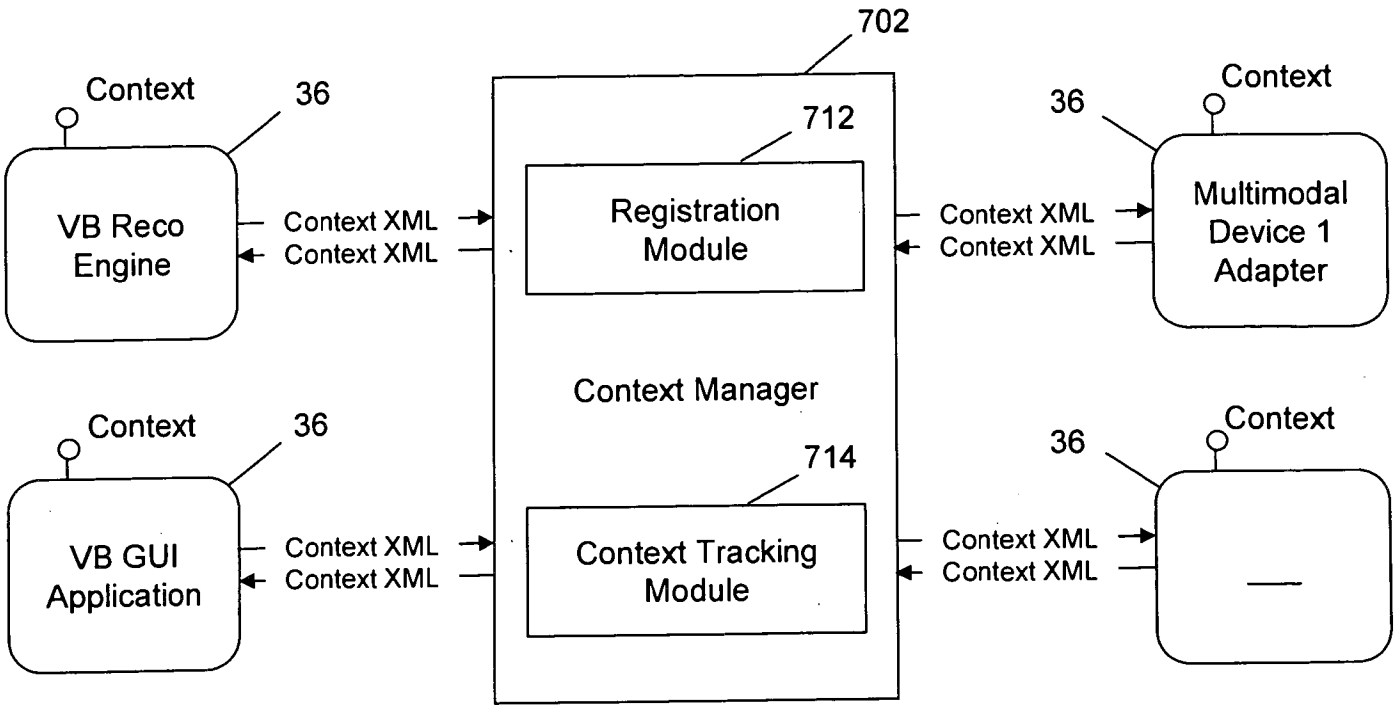

158
106
Agent Library
Agents
156
150
152
154
102
Domain Agent
System Agent
Criteria Handler
Agent Manager
Databases
100
Event Manager

FIG. 7


700
702
Context
36
VB Reco Engine
Context XML
Context XML
712
Registration Module
Context XML
Context XML
36
Context
Multimodal Device 1 Adapter
Context Manager
Context
36
VB GUI Application
Context XML
Context XML
714
Context Tracking Module
Context XML
Context XML
36
Context

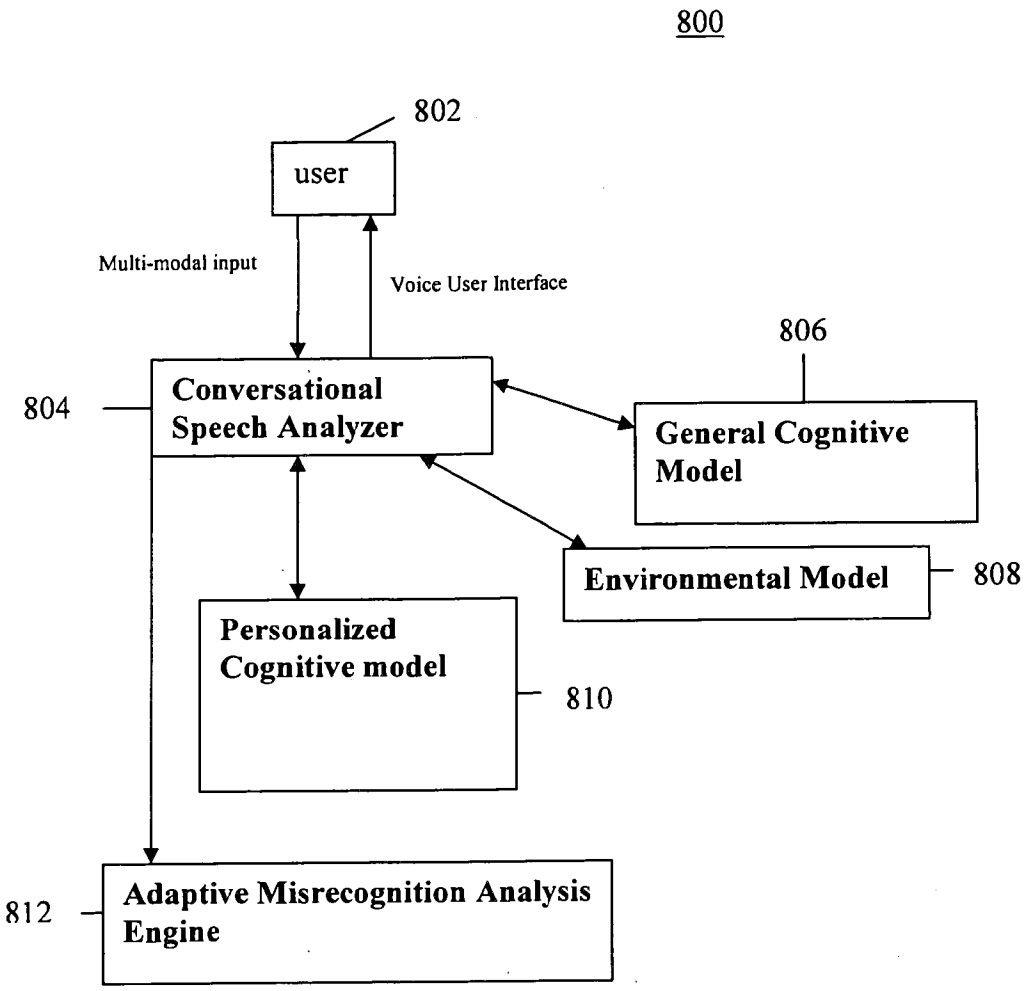

800
802
user
Multi-modal input
Voice User Interface
806
804
Conversational Speech Analyzer
General Cognitive Model
Environmental Model
808
Personalized Cognitive model
810
812
Adaptive Misrecognition Analysis Engine

FIGURE 8

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS
First Named Inventor/Applicant Name:	Chris Weider
Filer:	Ngai Bing Zhang/Miriam Nelsen Awan
Attorney Docket Number:	090611-0422643

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	70	70
Utility Search Fee	2111	1	300	300
Utility Examination Fee	2311	1	360	360
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**730**

Electronic Acknowledgement Receipt

EFS ID:	15821959
Application Number:	13898045
International Application Number:	
Confirmation Number:	6157
Title of Invention:	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS
First Named Inventor/Applicant Name:	Chris Weider
Customer Number:	909
Filer:	Ngai Bing Zhang/Miriam Nelsen Awan
Filer Authorized By:	Ngai Bing Zhang
Attorney Docket Number:	090611-0422643
Receipt Date:	20-MAY-2013
Filing Date:	
Time Stamp:	16:59:58
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$730
RAM confirmation Number	4527
Deposit Account	033975
Authorized User	

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Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		090611-0422643_ApplicationPapers_PrelimAmend.pdf	714890 a594cc7fc715a73c339a364bb7fe14e71145fe13	yes	7

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal of New Application	1	1
	Application Data Sheet	2	4
	Preliminary Amendment	5	5
	Claims	6	6
	Applicant Arguments/Remarks Made in an Amendment	7	7

Warnings:

Information:

2		090611-0422643_Specification.pdf	672998 39ebeaa064c7412fd51a09325e912465f280834e	yes	90

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Specification	1	79
	Claims	80	89
	Abstract	90	90

Warnings:

Information:

3	Drawings-only black and white line drawings	090611-0422643_Drawings.pdf	4153141 1869fc584cf37b12bfffd292726b7ebea91873d4	no	8

Warnings:

Information:

4	Fee Worksheet (SB06)	fee-info.pdf	33118 0aea5d212d1f937db68d58da863f7dc74ad04160	no	2

Warnings:	
Information:	
Total Files Size (in bytes):	5574147

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National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

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Document code: WFEE

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/898,045	Filing Date 05/20/2013	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	05/20/2013	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X $40 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
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/NICOLLE L. SCRIVNER/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/898,045	Filing Date 05/20/2013	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT

05/20/2013	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
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Independent (37 CFR 1.16(h))	* 1	Minus	***3	= 0	X $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

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LIE
/NICOLLE L. SCRIVNER/

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 13/898,045

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	1 minus 20 =	*	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 minus 3 =	*	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	730		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
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The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/898,045	05/20/2013	2658	800	090611-0422643	1	1

CONFIRMATION NO. 6157

909
Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

FILING RECEIPT

OC000000061920148

Date Mailed: 06/19/2013

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

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Lynn Elise Armstrong, Woodinville, WA;

Applicant(s)

VoiceBox Technologies, Inc., Kirkland, WA

Assignment For Published Patent Application

VoiceBox Technologies, Inc., Kirkland, WA

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 13/488,299 06/04/2012 PAT 8447607
which is a CON of 13/084,197 04/11/2011 PAT 8195468
which is a DIV of 11/212,693 08/29/2005 PAT 7949529

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 06/12/2013

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Page 00115

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/898,045**

Projected Publication Date: 09/26/2013

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

Preliminary Class

704

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

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Page 00116

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/898,045	05/20/2013	Chris Weider	090611-0422643

CONFIRMATION NO. 6157

909
Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

NOTICE



Date Mailed: 06/19/2013

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
  Chris Weider
  Richard Kennewick
  Mike Kennewick
  Robert A. Kennewick
  Philippe Di Cristo
  Samuel Menaker
  Lynn Elise Armstrong

  Applicant may submit the inventor's oath or declaration at any time before the Notice of Allowance and Fee(s) Due, PTOL-85, is mailed.

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Page 00118

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE PATENT APPLICATION OF:	Chris WEIDER *et al.*
SERIAL NO.:	13/898,045
FILING DATE:	May 20, 2013
ATTORNEY DOCKET NO.:	090611-0422643
CONFIRMATION NO.:	6157
EXAMINER:	*not yet assigned*
ART UNIT:	*not yet assigned*
FOR:	Mobile Systems and Methods of Supporting Natural Language Human-Machine Interactions

PRELIMINARY AMENDMENT

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Prior to initial examination on the merits, please amend the above-identified application as follows:

Amendments to the Specification begin on page **2** of this paper.

Amendments to the Claims begin on page **5** of this paper.

Remarks begin on page **11** of this paper.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a), and any fees required therefore (including fees for net addition of claims) are hereby authorized to be charged to Deposit Account No. 033975 (**Ref. No. 090611-0422643**).

AMENDMENTS TO THE SPECIFICATION: identifying insertions and ~~deletions~~**.**

- **Please insert the following new paragraph at page 1 of the as-filed Specification, prior to the paragraph entitled FIELD OF THE INVENTION:"**

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. patent application Ser. No. 13/488,299, filed on June 4, 2012 (which issued as U.S. Pat. No. 8,447,607 on May 21, 2013), which is a continuation of U.S. patent application Ser. No. 13/084,197, filed on April 11, 2011 (which issued as U.S. Pat. No. 8,195,468 on June 5, 2012), which is a divisional of U.S. patent application Ser. No. 11/212,693, entitled "Mobile Systems and Methods of Supporting Natural Language Human-Machine Interactions," filed August 29, 2005 (which issued as U.S. Pat. No. 7,949,529 on May 24, 2011), the contents of which are hereby incorporated by reference in their entirety.

- **Please amend paragraph [002], which begins on page 1, as follows:**

[002] Telematic systems are systems that bring human-computer interfaces to mobile environments. Conventional computer interfaces use some combination of keyboards, keypads, point and click techniques and touch screen displays. These conventional interface techniques are generally not suitable ~~for a~~ for mobile environments, due at least in part to the speed of interaction and the inherent danger and distraction. Therefore, speech interfaces are being adopted in many telematic applications.

- **Please amend paragraph [027], which begins on page 10, as follows:**

[027] According to another aspect of the invention, the system may process and respond to questions, requests and/or commands. Keywords or context may be used to determine whether the received utterance and/or textual message ~~includes~~ include a request or command. For example, utterances may include aspects of questions, requests and/or commands. For example, a user may utter "tune in my favorite radio station." A request is processed to determine the name, the channel, and time for the ~~users~~ user's favorite radio station. If the programming on that station is of a type the user generally does not listen to, the system can suggest using an ~~alterative~~ alternative option, such as listening to a CD more likely to please the user. A command must be executed to set a tune the radio station.

- **Please amend paragraph [036], which begins on page 14, as follows:**

[036] In order to make the responses to user's questions and commands seem more natural, the system may employ one or more dynamically invokeable personalities and/or emotional models. Personalities and emotional models have specific characteristics that simulate the behavioral characteristics of real humans. Examples of these characteristics ~~include,~~ include sympathy, irritation, and helpfulness and associated emotions. The personality also randomizes aspects of responses, just as a real human would do. This behavior includes randomization of terms used and the order of presentation of information. Characteristics of the personality and/or emotions are invoked using probabilistic or fuzzy set decision and matching methods and using criteria, including the context for the question, the history of the user's interaction, user preferences, information sources available, and responses obtained from the sources.

- **Please amend paragraph [0135], which begins on page 70, as follows:**

[0135] In general, the question that is asked by the system 90 may be phrased to indicate the context of the question including all criteria or parameters. For example, the question can be in the form of: "Did I understand that you want such-and-such?" If the user confirms that the question is correct the system proceeds to produce a response. Otherwise, the user can rephrase the original question, perhaps adding additional information to remove ambiguity, or the system can ask one or more questions to attempt to resolve the ambiguity.

- **Please amend paragraph [0143], which begins on page 73, as follows:**

[0143] The local information sources can be stored in one or more system databases 102 or can be on any local data storage such as a set of CDs or DVDs in a player or other local data storage. In other cases, local information can be obtained from vehicle system settings or measurement devices. Network information sources can be connected to, the control and device interfaces 30, the data interfaces 26, the Internet 42 or other network and accessed through a series of plug-ins or adaptors, ~~known a~~ known as pluggable sources, in the network interface 116. The pluggable sources are capable of executing the protocols and interpreting the data formats for the data sources of interest. The pluggable source provides information scrapping forms and procedures for each source to the domain agents 156. If a new type of data source is to be used a new plug-in or adaptor can be added to the appropriate interface.

This listing of claims will replace all prior versions and listings of claims in the Application.

LISTING OF CLAIMS:

1-49. (**Cancelled**)

50. (**New**) A system for processing natural language utterances where recognized words of the natural language utterances alone are insufficient to completely determine one or more commands or requests, the system including one or more processors executing one or more computer program modules which, when executed, cause the one or more processors to:

generate a context stack comprising context information that corresponds to a plurality of prior utterances;

receive a natural language utterance associated with a command or request;

determine one or more words of the natural language utterance by performing speech recognition on the natural language utterance; and

determine the command or request based on the one or more words and the context information.

51. (**New**) The system of claim 50, wherein the one or more processors are further caused to:

prompt a user associated with the natural language utterance for additional information or confirmation regarding the command or request; and

receive a non-speech input regarding the additional information or confirmation in response to the prompt, wherein the command or request is determined further based on the non-speech input.

52. (**New**) The system of claim 50, wherein the context stack includes a plurality of context entries, and wherein the one or more processors are further caused to:

identify, from among the plurality of context entries, one or more context entries that correspond to the one or more words, wherein the context information includes the one or more context entries.

53. (**New**) The system of claim 52, wherein identifying the one or more context entries comprises:

comparing the plurality of context entries with the one or more words;

generating one or more rank scores for individual context entries of the plurality of context entries based on the comparison; and

identifying, from among the plurality of context entries, the one or more context entries based on the one or more rank scores.

54. (**New**) The system of claim 53, wherein the plurality of context entries are ordered in the context stack, and wherein the one or more processors are further caused to update the ordering of the plurality of context entries in the context stack based on the one or more rank scores.

55. (**New**) The system of claim 54, wherein the natural language utterance is associated with a user, and wherein the one or more processors are further caused to:

receive a subsequent natural language utterance associated with the user; and

determining one or more subsequent words of the subsequent natural language utterance by performing speech recognition on the subsequent natural language utterance;

identify, from among the plurality of context entries, one or more other context entries that correspond to the one or more subsequent words based on the updated ordering; and

determine a subsequent command or request based on the one or more subsequent words and the one or more other context entries.

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56. (**New**) The system of claim 52, wherein identifying the one or more context entries comprises identifying, from among the plurality of context entries, the one or more context entries that most closely correspond to the one or more words.

57. (**New**) The system of claim 50, wherein the one or more processors are further caused to:

identify one or more domain agents associated with the one or more context entries, wherein the one or more domain agents are configured to process the command or request; and

generate a response to the command or request using the one or more domain agents.

58. (**New**) The system of claim 57, wherein each of the one or more domain agents comprises domain knowledge associated with a particular domain, the domain knowledge comprising: (i) a keyword; (ii) a link to an information source; (iii) a list of responses associated with a plurality commands or requests; (iv) a substitution list used to format the plurality of commands or requests; or (v) content including dictionaries, encyclopedias, or almanacs.

59. (**New**) The system of claim 57, wherein the response comprises an aggregation of one or more responses generated by the one or more domain agents based on the command or request.

60. (**New**) The system of claim 57, wherein the one or more processors are further caused to:

obtain information relating to a license agreement that is associated with at least one of the one or more domain agents;

determine that use of the at least one of the one or more domain agents to process the command or request is permitted based on the information related to the license agreement; and

generate, using the at least one of the one or more domain agents, the response based on the determination that the use is permitted.

61. (**New**) The system of claim 50, wherein the natural language utterance is associated with a user, and wherein the one or more processors are further caused to:

obtain a cognitive model or an environmental model associated with the user, wherein the cognitive model comprises information relating to one or more interactions between the user and the system, and the environmental model comprises information indicative of how noisy an environment surrounding the user is,

wherein the one or more words are determined further based on the cognitive model or the environmental model.

62. (**New**) The system of claim 50, wherein the natural language utterance is associated with a user, and wherein the one or more processors are further caused to:

obtain a first cognitive model that comprises information relating to one or more interactions between the user and the system; and

obtain a second cognitive model that comprises information relating to one or more interactions between the system and a plurality of users of the system,

wherein the one or more words are determined further based on the first cognitive model and the second cognitive model.

63. (**New**) The system of claim 50, wherein the context stack is a first context stack of a first device, and wherein the one or more processors are further caused to:

synchronize the context stack with a second context stack of a second device.

64. (**New**) A computer-implemented method of processing natural language utterances where recognized words of the natural language utterances alone are insufficient to completely determine one or more commands or requests, the method being implemented by a computer system that includes one or more processors executing one or more computer program modules which, when executed, perform the method, the method comprising:

generating a context stack comprising context information that corresponds to a plurality of prior utterances;

receiving a natural language utterance associated with a command or request;

determining one or more words of the natural language utterance by performing speech recognition on the natural language utterance; and

determining the command or request based on the one or more words and the context information.

65. (**New**) The method of claim 64, further comprising:

prompting a user associated with the natural language utterance for additional information or confirmation regarding the command or request; and

receiving a non-speech input regarding the additional information or confirmation in response to the prompt, wherein the command or request is determined further based on the non-speech input.

66. (**New**) The method of claim 64, wherein the context stack includes a plurality of context entries, the method further comprising:

identifying, from among the plurality of context entries, one or more context entries that correspond to the one or more words, wherein the context information includes the one or more context entries.

67. (**New**) The method of claim 66, wherein identifying the one or more context entries comprises:

comparing the plurality of context entries with the one or more words;

generating one or more rank scores for individual context entries of the plurality of context entries based on the comparison; and

identifying, from among the plurality of context entries, the one or more context entries based on the one or more rank scores.

68. (**New**) The method of claim 64, further comprising:

identifying one or more domain agents associated with the one or more context entries, wherein the one or more domain agents are configured to process the command or request; and

generating a response to the command or request using the one or more domain agents.

69. (**New**) The method of claim 64, wherein the natural language utterance is associated with a user, the method further comprising:

obtaining a first cognitive model that comprises information relating to one or more interactions between the user and the system; and

obtaining a second cognitive model that comprises information relating to one or more interactions between the system and a plurality of users of the system,

wherein the one or more words are determined further based on the first cognitive model and the second cognitive model.

REMARKS

By this Preliminary Amendment, the Specification has been amended to update related application data. Additionally, claim 1 has been cancelled (and claims 2-49 were previously cancelled) without prejudice or disclaimer. Claims 50-69 have been newly added. Therefore, claims 50-69 are now pending. Support for the instant amendments is provided throughout the as-filed Specification. Thus, no new matter has been added.

Prompt examination and allowance of all the claims pending in the application are respectfully solicited. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

Date: **June 25, 2013**

PILLSBURY WINTHROP SHAW PITTMAN LLP

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Electronic Acknowledgement Receipt

EFS ID:	16147942
Application Number:	13898045
International Application Number:	
Confirmation Number:	6157
Title of Invention:	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS
First Named Inventor/Applicant Name:	Chris Weider
Customer Number:	909
Filer:	Ngai Bing Zhang/Miriam Nelsen Awan
Filer Authorized By:	Ngai Bing Zhang
Attorney Docket Number:	090611-0422643
Receipt Date:	25-JUN-2013
Filing Date:	20-MAY-2013
Time Stamp:	15:27:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		090611-0422643_PreliminaryAmendment.pdf	574028 cd7920a190435721ac941f277957a2f5272dff32	yes	11

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Preliminary Amendment	1	1
	Specification	2	4
	Claims	5	10
	Applicant Arguments/Remarks Made in an Amendment	11	11
Warnings:			
Information:			
	Total Files Size (in bytes):	574028	

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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/898,045	Filing Date 05/20/2013	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **06/25/2013**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X $40 =	0
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/NICOLLE L. SCRIVNER/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/898,045	05/20/2013	Chris Weider	090611-0422643

CONFIRMATION NO. 6157

909
Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

PUBLICATION NOTICE

OC00000064037524

Title:MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

Publication No.US-2013-0253929-A1
Publication Date:09/26/2013

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/898,045	05/20/2013	Chris Weider	090611-0422643	6157

909 7590 10/17/2013

Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

EXAMINER	
YEN, ERIC L	

ART UNIT	PAPER NUMBER
2658	

NOTIFICATION DATE	DELIVERY MODE
10/17/2013	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket_ip@pillsburylaw.com
heather.marthers@pillsburylaw.com

Office Action Summary	Application No. 13/898,045	Applicant(s) WEIDER ET AL.	
	Examiner ERIC YEN	Art Unit 2658	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *50-69* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☐ Claim(s) _____ is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☒ Claim(s) *50-69* are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *5/20/13* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some * c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

1) The present application is being examined under the pre-AIA first to invent provisions.

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species:

Species I: Dependent claims directed to natural language analysis, particularly identifying, scoring, and other manipulations/analyses of context entries in the context stack and natural language analyses to determine context and interpret user inputs based on the determined context (Claims 53-56, 66-67)

Species II: Dependent claims directed to domain agents associated with context entries used to interact-with/respond-to the user (Claims 57-60, 68)

Species III: Dependent claims directed to special speech recognition characteristics, particularly cognitive/environmental models used to determine/recognize words based on prior interactions and/or environmental noise and not natural language analyses (61-62, 69)

The species are independent or distinct because they are directed to distinct features of a dialog system which may have distinct patentable characteristics and can be classified differently (e.g. Species I in 704/9, Species II in 704/275, and Species III in 704/233, 236, 251).

In addition, these species are not obvious variants of each other based on the current record.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species, or a single grouping of patentably indistinct species, for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, 50, 51, 52, 63, 64, 65, are generic.

There is a search and/or examination burden for the patentably distinct species as set forth above because at least the following reason(s) apply:

Since the 3 species are directed to limitations involving 3 distinct areas in speech processing (natural language processing, speech recognition, and dialog interactions, as discussed above), and can be classified in 3 different areas which have their own patentable merits (see above), there is a search and/or examination burden for the patentably distinct species.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected species or grouping of patentably indistinct species**, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

The election may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement

will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected species or grouping of patentably indistinct species.

Should applicant traverse on the ground that the species, or groupings of patentably indistinct species from which election is required, are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing them to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the species unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103 or pre-AIA 35 U.S.C. 103(a) of the other species.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC YEN whose telephone number is (571)272-4249. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EY 10/10/13
/Eric Yen/
Primary Examiner, Art Unit 2658

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
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BIB DATA SHEET

CONFIRMATION NO. 6157

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
13/898,045	05/20/2013	704	2658	090611-0422643

APPLICANTS

VoiceBox Technologies, Inc., Kirkland, WA, Assignee (with 37 CFR 1.172 Interest);
Chris Weider, Everett, WA;
Richard Kennewick, Woodinville, WA;
Mike Kennewick, Bellevue, WA;
Robert A. Kennewick, Seattle, WA;
Philippe Di Cristo, Bellevue, WA;
Samuel Menaker, Bellevue, WA;
Lynn Elise Armstrong, Woodinville, WA;

**** CONTINUING DATA ***************************

This application is a CON of 13/488,299 06/04/2012 PAT 8447607
which is a CON of 13/084,197 04/11/2011 PAT 8195468
which is a DIV of 11/212,693 08/29/2005 PAT 7949529

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
06/12/2013

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /ERIC L YEN/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		WA	8	1	1

ADDRESS

Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102
UNITED STATES

TITLE

MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

FILING FEE RECEIVED		
800	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13898045	WEIDER ET AL.
	Examiner	**Art Unit**
	ERIC YEN	2658

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	10/10/2013								
	50	÷								
	51	÷								
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	53	÷								
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/898,045	05/20/2013	Chris Weider	090611-0422643	6157

909 7590 10/29/2013

Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

EXAMINER	
YEN, ERIC L	

ART UNIT	PAPER NUMBER
2658	

NOTIFICATION DATE	DELIVERY MODE
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Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket_ip@pillsburylaw.com
heather.marthers@pillsburylaw.com

Applicant-Initiated Interview Summary	Application No.	Applicant(s)	
	13/898,045	WEIDER ET AL.	
	Examiner	Art Unit	
	ERIC YEN	2658	

All participants (applicant, applicant's representative, PTO personnel):

(1) *ERIC YEN*. (3)_____.

(2) *NGAI ZHANG*. (4)_____.

Date of Interview: *24 October 2013*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☐ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☐103 ☒Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *1*.

Identification of prior art discussed: _____.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Applicant's representative and the examiner discussed the restriction/election requirement and the relationship between the currently claimed species groups and the independent claim of the parent case.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/Eric Yen/ Primary Examiner, Art Unit 2658	

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In Re Patent Application Of:	Chris WEIDER, *et al.*	**Attorney Docket No.:**	090611-0422643
Serial No.:	13/898,045	**Confirmation No.:**	6157
Filing Date:	May 20, 2013	**Examiner:**	Eric L. Yen
		Art Unit:	2658

For: Mobile Systems and Methods of Supporting Natural Language Human-Machine Interactions

RESPONSE TO ELECTION OF SPECIES REQUIREMENT

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Election of Species Requirement mailed **October 17, 2013**, and without acknowledging the propriety of the alleged basis for the restriction, Applicants hereby elect the claims in **Group II (claims 50-52, 57-60, 63-65, and 68)** with traverse for prosecution on the merits. Particularly, and as discussed during the telephonic interview conducted on October 24, 2013, Applicants traverse the Election of Species Requirement because a search and examination of all the pending claims (claims 50-69) can be made without serious burden.

Furthermore, it is respectfully submitted that the application is in condition for allowance. Notice to that effect is respectfully requested. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Google Exhibit 1012
Page 00145

It is believed that no fees are due in connection with the filing of this Response. In the event that it is determined that fees are due, however, the Director is hereby authorized to charge the undersigned's Deposit Account No. 033975 (**Ref. No. 090611-0422643**).

Respectfully submitted,

Date: **November 18, 2013**

PILLSBURY WINTHROP SHAW PITTMAN LLP

By: /Ngai B. Zhang/
Ngai B. Zhang
Reg. No. 65,473

Customer No. 00909

P.O. Box 10500
McLean, Virginia 22102
Direct Dial: 703.770.7532
Main: 703.770.7900
Fax: 703.770.7901

Google Exhibit 1012
Page 00146

Electronic Acknowledgement Receipt

EFS ID:	17432814
Application Number:	13898045
International Application Number:	
Confirmation Number:	6157
Title of Invention:	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS
First Named Inventor/Applicant Name:	Chris Weider
Customer Number:	909
Filer:	Ngai Bing Zhang/Miriam Nelsen Awan
Filer Authorized By:	Ngai Bing Zhang
Attorney Docket Number:	090611-0422643
Receipt Date:	18-NOV-2013
Filing Date:	20-MAY-2013
Time Stamp:	16:53:58
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Response to Election / Restriction Filed	090611-0422643_ResponseElectionSpeciesRequirement.pdf	519650 bde8863e62302ab6c8f9b27ef41749e29c6518da	no	2

Warnings:	
Information:	

Total Files Size (in bytes):	519650

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/898,045	05/20/2013	Chris Weider	090611-0422643	6157

909 7590 01/29/2014

Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

EXAMINER	
YEN, ERIC L	

ART UNIT	PAPER NUMBER
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NOTIFICATION DATE	DELIVERY MODE
01/29/2014	ELECTRONIC

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docket_ip@pillsburylaw.com
heather.marthers@pillsburylaw.com

Office Action Summary	Application No. 13/898,045	Applicant(s) WEIDER ET AL.	
	Examiner ERIC YEN	Art Unit 2658	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/18/13*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *50-69* is/are pending in the application.

5a) Of the above claim(s) *53-55,61,62,67 and 69* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *50-52, 56-60, 63-66, 68* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

1. The present application is being examined under the pre-AIA first to invent provisions.

Election/Restrictions

2. Claims 53-55, 61-62, 67, 69, are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Species I and III, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 11/18/13.

Claim 66 was found to be similar to claim 52 and so is not withdrawn from consideration and is rejected under similar rationale.

Claim 56 was found to be taught by the prior art found in due course within the present search and so is not withdrawn from consideration.

3. Applicant's election with traverse of the Requirement for Restriction/Election mailed 10/17/13 in the reply filed on 11/18/13 is acknowledged. The traversal is on the ground(s) that a search can be made without undue burden (Amendment, page 1)

More specifically (inferred from the content of the parent applications' claims) Applicant appears to be arguing that Claim 46 of the parent Application 13/488,299 included a combination of the general limitations described in the 3 species (i.e. context stacks and identifying context entries based on rank scores, domain agents, and cognitive/environmental models) and that therefore the appropriate areas have already been searched.

This is not found persuasive because, first, the limitations were not (as claimed in this application) claimed in isolation from each other. Claim 46 inter-relates/connects the various limitations including where the context stack entry which is identified is based not on any transcription but a transcription based on the claimed models, and where the domain agent which is identified is also based on the identified entry which is based on the transcription based on the claimed models. What was previously considered was therefore not 3 independent concepts but rather 3 inter-related concepts. The inter-related combination is distinct from any subcombination which does not require the concepts of this applications' 3 species to all be inter-related.

Additionally, the 3 species do not include only those limitations in claim 46 of the parent application, and includes limitations which were not previously claimed in 3 distinct areas.

For example, as per Species I, while claim 46 of the parent application includes identifying context entries, it does not mention ranking and scoring of context entries to make the appropriate identification (claim 53), manipulate the context stack based on the scores (claim 54), running a second pass based on the manipulated stack (claim 55).

Similarly, as per Species II, while claim 46 includes domain agents being used to generate commands, the parent application also does not include the particulars of the domain knowledge in claim 58, aggregation of responses from multiple domain agents (claim 59, where the parent application teaches aggregating content gathered but not

necessarily where the content is from one or more domain agents) and license agreement-related limitations in claim 60.

Additionally, while claims 62 and 69 have limitations which were included in claims 1 and 5 of the parent application, these claims were not previously searched for their substantive content since their previous allowability was dependent on the initial substantive allowability of the independent claims (which made the issue of whether their limitations were taught by the prior art moot since dependent claims incorporate the limitations of their parent independent claims).

Even if the respective general areas of the 3 species were previously searched, what is claimed in the current application (especially those limitations which were not previously claimed in the parent cases) have not yet been searched for and found. The search requires searching 3 distinct areas for several disparate concepts which were not previously claimed in the parent applications in a manner that the limitations should have or have already been found. Accordingly, the examiner maintains that there would be a serious burden to searching all 3 areas such that the restriction/requirement-for-election is proper.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

4. The following is a quotation of 35 U.S.C. 112(b):

> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 57, 60, 68 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Claim 57 recites "the one or more context entries" which are not present in claim 50 (though they are present in claim 52. It is not clear if this claim is supposed to depend on claim 52 (or some other claim which includes context entries) or if claim 50 is supposed to have context entries and not just context information.

Claim 68 has similar issues as those discussed above pertaining to claim 57

Claim 60 recites "determine that use of the at least one of the one or more domain agents to process the command or request is permitted based on the information related to the license agreement" which has two possible conflicting interpretations and is therefore ambiguous. Specifically, "based on…" can refer to either "determine…" or "permitted" (i.e. that the determination itself is based on the licensing information or that the determination is that use is permitted where the permission [not the determination] is based on the licensing information). While this may seem relatively insignificant, the two grammatical parses alter which entity is described by "based on…" and therefore the ambiguity has a significant effect on the

scope of the claim (since the question of which entity has the "based on…" characteristic affects the nature of what is required for both the "determine…" and "permitted" entities).

Similarly, "based on…" in the last step can refer to either "generate" or "the response" (where if "based on" refers to "the response", "the response based on the determination that the use is permitted" lacks antecedent basis because prior recitations of "response" do not require it to be based on the claimed determination in claim 60) and is therefore grammatically ambiguous.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 64-69 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

While Applicant has fairly clearly tried to make efforts to establish that the method is implemented using computers and processors and necessary machinery to render the claims statutory, as claimed the limitations requiring machinery are in the preamble and are thus not given patentable weight when they are not referred to by the body of the claim. Relocating the phrase in the preamble requiring machinery into the body of the claim will suffice to overcome this rejection.

As claimed claims 64-69 are directed to abstract processes and data structures that can be performed by a human brain and a person interacting with another human being user. Domain agents and cognitive models are also data structures which can be written on paper, for example, for a processing human being to read and react accordingly. Therefore, as claimed the claims are directed to abstract steps and are non-statutory until the limitations requiring machinery are moved from the preamble to the body of the claims.

Claim Rejections - 35 USC § 103

7. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 50, 52, 56-59, 64, 66, 68 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Ross et al. (US 2002/0133354), hereafter Ross.

As per Claim 50, 64, Ross teaches/suggests a system (and corresponding method) for processing natural language utterances where recognized words of the natural language utterances alone are insufficient to completely determine one or more commands or requests, the system including one or more processors executing one or more computer program modules which, when executed, cause the one or more

processors to: ("computer system", paragraph 21; "computer program", paragraph 22; "electronic mail application… Print it", paragraphs 40-45; "calendar application… Print it", paragraphs 46-51; "If the sentence is 'print it' however, both grammars are capable of accepting the utterance… make a choice", paragraph 53; where at least the spoken inputs in paragraphs 40-45 and 46-51 are in the English natural language and are thus natural language utterances, where the particular utterance "print it" has words which alone are insufficient to determine what to print [i.e. what command the system is to implement, particularly one of print e-mail or print calendar entry])

generate a context stack comprising context information that corresponds to a plurality of prior utterances (Figure 4; "context list", paragraph 33; "priority and state of the various grammars in the context list", paragraph 34; "most recently accessed speech-enabled application… whether the context for that application is at the top of the context list", paragraph 36; "checking the speech representation against contexts… starting at top of context list to determine the highest priority context that can process the speech representation", paragraph 37; "open…create… send…print", paragraphs 40-45; "open…create…print", paragraphs 46-51; "when an utterance is recognized, the conversation manager… combines an analysis of the utterance with information on the state of the desktop and remembered context from previous recognitions to determine the intended target of the utterance… utterance is then translated into the appropriate script engine… calls and dispatched", paragraph 31; where at least the existence of multiple allowable commands suggests that the system can receive multiple different commands over time, where the context list can be interpreted as a "stack" since it

"vertically" arranges [i.e. ranks] contexts in order of priority including how recently a given context is used, where any one of the contexts in the list can be interpreted as context information which corresponds to the commands it can process which are at least obviously spoken at least once over time [e.g. in an e-mail application it is at least obvious that over time the create and open and send commands are used at least once such that at some point in time those commands were prior utterances to which the e-mail context corresponds to]. Additionally Ross refers to a "remembered context from previous recognitions" [paragraph 31] which more explicitly teaches where contexts can correspond to multiple prior utterances since recognitions are performed on utterances)

receiving a natural language utterance associated with a command or request ("input spoken utterance… is a voice command… determines a context… for the spoken utterance… command… directed to the speech enabled external application", paragraph 21; "open…create… send…print", paragraphs 40-45; "open…create…print", paragraphs 46-51; where Ross explicitly states that input utterances are commands and the utterances are at least obviously in the English natural language at least in the case of the described e-mail and calendar applications in paragraphs 40-51)

determine one or more words of the natural language utterance by performing speech recognition on the natural language utterance (Figure 1; "convert speech into text strings…include the ViaVoice", paragraph 2; "speech engine interface… speech engine 22… is ViaVoice", paragraph 24; "when an utterance is recognized… analysis of the utterance with information on the state of the desktop and remembered context from previous recognitions to determine the intended target of the utterance… utterance is

then translated into the appropriate script engine… calls… dispatched", paragraph 31; "speech representation recognized by the speech engine 22", paragraph 36; "open…create… send…print", paragraphs 40-45; "open…create…print", paragraphs 46-51; where Ross states that the recognition messages are speech representations from speech engine 22 [paragraph 36], where speech engine 22 is ViaVoice [paragraph 24], and where ViaVoice is one of the recognition engines that convert speech into text strings [paragraph 2]. Logically, therefore, the generation of the recognition message is speech recognition which determines words which were spoken in the input utterance, which at least in the "print it" example is a natural language utterance [i.e. the English natural language])

determine the command or request based on the one or more words and the context information (Figure 1; "convert speech into text strings…include the ViaVoice", paragraph 2; "speech engine interface… speech engine 22… is ViaVoice", paragraph 24; "when an utterance is recognized, the conversation manager… combines an analysis of the utterance with information on the state of the desktop and remembered context from previous recognitions to determine the intended target of the utterance… utterance is then translated into the appropriate script engine… calls and dispatched", paragraph 31; "recognition message [speech representation recognized by the speech engine]", paragraph 36; "selects a context… checking the speech representation against contexts… starting at top of context list… to determine the highest priority context that can process the speech representation… translated according to the selected context… translation to the script engine… to perform the action indicated by

the translated utterance", paragraph 37; "if the sentence is 'print it'… both grammars are capable… choice… referring to the context list… recency of access… in priority order", paragraph 53; "resolves the ambiguity… top priority context… directs a translation… indicated by the top priority context", paragraph 59; where at least one context [i.e. piece of "context information"] is used to resolve the ambiguous phrase "print it" to determine exactly what to print and to send an appropriate command accordingly).

As per Claim 52, 66, Ross teaches wherein the context stack includes a plurality of context entries, and wherein the one or more processors are further caused to: identify, from among the plurality of context entries, one or more context entries that correspond to the one or more words, wherein the context information includes the one or more context entries (Figure 4; Figure 1; "convert speech into text strings…include the ViaVoice", paragraph 2; "speech engine interface… speech engine 22… is ViaVoice", paragraph 24; "when an utterance is recognized, the conversation manager… combines an analysis of the utterance with information on the state of the desktop and remembered context from previous recognitions to determine the intended target of the utterance… utterance is then translated into the appropriate script engine… calls and dispatched", paragraph 31; "recognition message [speech representation recognized by the speech engine]", paragraph 36; "selects a context… checking the speech representation against contexts… starting at top of context list… to determine the highest priority context that can process the speech representation… translated according to the selected context… translation to the script engine… to perform the

action indicated by the translated utterance", paragraph 37; "if the sentence is 'print it'… both grammars are capable… choice… referring to the context list… recency of access… in priority order", paragraph 53; "resolves the ambiguity… top priority context… directs a translation… indicated by the top priority context", paragraph 59; where the context list/stack includes multiple contexts, which can alternatively collectively be interpreted as context information since it is at least obvious for systems prepared to process multiple commands in different contexts to actually receive those commands over a period of continuous use [such that the context information corresponds to the plurality of input commands over time], where each context can alternatively be interpreted as individual context entries included in the collective context information [i.e. those contexts previously used to recognize various input utterances which the contexts were designed to process], where, for example, in the print it example, a particular context [e.g. e-mail or calendar application] is identified as a context that can process the utterance [i.e. that it corresponds to the one or more words "print it" in the utterance], or alternatively the identified context can be identified according to priority and "happen" to correspond to the words "print it" [by being a grammar that can process the command "print it"] and also meet the limitations of the claim that way)

As per Claim 56, Ross teaches wherein identifying the one or more context entries comprises identifying, from among the plurality of context entries, the one or more context entries that most closely correspond to the one or more words ("if the

sentence is 'print it'… both grammars are capable… choice… referring to the context list… recency of access… in priority order", paragraph 53; "resolves the ambiguity… top priority context… directs a translation… indicated by the top priority context", paragraph 59; "electronic mail application", paragraphs 40-45; "calendar application", paragraphs 46-51; where the identified contexts in the calendar/e-mail example are, among other things, those contexts/applications that can handle the phrase "print it" in an input phrase containing the words print it [which logically "corresponds" the contexts/applications and the words in the spoken utterance of "print it"])

As per Claims 57, 68, Ross teaches/suggests wherein the one or more processors are further caused to: identify one or more domain agents associated with the one or more context entries, wherein the one or more domain agents are configured to process the command or request, and generate a response to the command or request using the one or more domain agents ("output is a command or other input…directed to the speech enabled external application", paragraph 21; Figure 2; "external applications… may be hosted on one computer system… executed by a different digital processor", paragraph 23; "control applications 26", paragraph 26; "dispatched to the target application", paragraph 31; "context list includes contexts… for speech-enabled applications", paragraph 33; "electronic mail application", paragraphs 40-45; "calendar application", paragraphs 46-51; "If the user says 'print it', then the first message is printed", paragraph 55; "if the user says 'print this' then the second appointment is printed", paragraph 56; "passes the commands on to the first

application", paragraph 53; where each of the external applications can be interpreted as "domain agents" since they are specific to the domain of their respective functions [e.g. e-mail application operates in the e-mail domain/context], and they are the subordinate applications which implement the functions which the system wants to implement [i.e. they are "agents" of the system]. Identifying an appropriate application/domain-agent is done by identifying the proper context for processing the command input via speech, and the agents produce responses [e.g. the printing in paragraphs 55-56]).

As per Claim 58, Ross teaches wherein each of the one or more domain agents comprises domain knowledge associated with a particular domain, the domain knowledge comprising: (i) a keyword; (ii) a link to an information source; (iii) a list of responses associated with a plurality commands or requests; (iv) a substitution list used to format the plurality of commands or requests; or (v) content including dictionaries, encyclopedias, or almanacs ("electronic mail application", paragraphs 40-45; "calendar application", paragraphs 46-51; where for example the e-mail app contains knowledge associated to e-mailing while the calendar app contains knowledge associated to calendar functions, each of which obviously contain links to information sources [e.g. the e-mail app obviously has a repository of received e-mails which can be linked to whatever function requires its knowledge/information or has a link which accesses whatever data is needed to facilitate other commands, and similarly the calendar app obviously has some data storage containing calendar information which can be

accessed-by/linked-to whatever function requires the calendar information] since they are at least obviously organized data structures with corresponding processing, and alternatively since paragraphs 40-51 describe that each application can process multiple commands and respond accordingly, they each obviously have some data structure which associates those responses with corresponding commands, where the set of response/command mappings can be interpreted as a list. Further alternatively, e-mail information and calendar information generally convey significant information verbally [i.e. using words] and therefore whatever text conveys significant information can be interpreted as "keywords" [e.g. dentist can be a keyword in a calendar entry about a dentist appointment since it provides significant information about who to meet at the appointment time and a sender/recipient name can be interpreted as a keyword in an e-mail since it conveys significant information about who the communication is between])

As per Claim 59, Ross teaches wherein the response comprises an aggregation of one or more responses generated by the one or more domain agents based on the command or request ("output is a command or other input…directed to the speech enabled external application", paragraph 21; Figure 2; "external applications… may be hosted on one computer system… executed by a different digital processor", paragraph 23; "control applications 26", paragraph 26; "dispatched to the target application", paragraph 31; "context list includes contexts… for speech-enabled applications", paragraph 33; "electronic mail application", paragraphs 40-45; "calendar application",

paragraphs 46-51; “If the user says ‘print it’, then the first message is printed”, paragraph 55; “if the user says ‘print this’ then the second appointment is printed”, paragraph 56; “passes the commands on to the first application”, paragraph 53; where, as claimed, the aggregation can be only a single response from a single agent, and since Ross teaches that the external applications/agents perform at least one function in response to a command, that single response meets the limitation of the claims [i.e. even though “aggregation” seems to suggest combining things, “aggregation of one” cannot be anything more than an aggregation made of one entity).

8. Claims 51, 65, are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Ross, as applied to Claims 50 and 64, above, and further in view of Dominach et al. (US 2004/0172258), hereafter Dominach.

As per Claim 51, 65, Ross does not, but Dominach (in combination with Ross) teaches/suggests wherein the one or more processors are further caused to: prompt a user associated with the natural language utterance for additional information or confirmation regarding the command or request, and receive a non-speech input regarding the additional information or confirmation in response to the prompt, wherein the command or request is determined further based on the non-speech input (“speech input is received… user speaking into a microphone… speech is not recognized unambiguously, then a list of possible alternatives is determined… presented to a user… selects one of the alternatives, and the selected alternative is provided to the

application as input", paragraph 30; "present to the end user the recognition alternatives… selection input… keypad input, stylus input", paragraph 20; where the combination is where the speech recognition function in Ross further comprises a function described in Dominach which allows the user to clarify what he/she said when the system determines the input speech is ambiguous by presenting a list of alternatives to the user, where presentation of alternatives "prompts" the user to select one so that the system can properly understand what the user wanted, and where in the combination the disambiguation input produces a recognition result which as described in Ross, is used to determine what command to execute. Paragraph 20 also teaches where selections from the user can be via keypad, stylus, etc. and therefore at least suggests where the disambiguating selection is via non-speech input).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to combine prior art elements according to known methods because the prior art teaches each element claimed except for the lack of combination of elements in a single prior art reference. One of ordinary skill in the art could have combined the prior art elements according to known methods (by adding the disambiguation function in Dominach to the speech recognition in Ross) and in combination each element performs the same function as it does separately (the disambiguation is distinct from mapping audio to candidate recognition result data and occurs after a series of mappings are made to produce the ambiguous candidates and does not interfere with the command translation in Ross which occurs after a desired recognition result is obtained). The combination is the predictable results of a speech

recognition system which processes natural language utterances and activates commands (as per Ross) and which has a disambiguation function to deal with situations where the system cannot immediately determine a single recognition result for an input speech utterance (as per Dominach).

9. Claim 60 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Ross, as applied to claim 57, above, and further in view of Potter, III et al. (US 2007/0043569), hereafter Potter.

As per Claim 60, Ross does not, but Potter (in combination with Ross) suggests wherein the one or more processors are further caused to: obtain information relating to a license agreement that is associated with at least one of the one or more domain agents; determine that use of the at least one of the one or more domain agents to process the command or request is permitted based on the information related to the license agreement; and generate, using the at least one of the one or more domain agents, the response based on the determination that the use is permitted (“This allows users [assuming they have the proper permissions] to access new applications as soon as they are added, without requiring programmers to manually re-design menus”, paragraph 5; where Potter teaches the concept of providing users access if they have proper permissions [i.e. if they have a “license”/permission to use the programs] which at least suggests that not only does each user have corresponding information which indicates what a given user does or does not have access to, and checking for

permissions to use applications before allowing the user to use the applications [and denying access where the user does not have permission]. The combination is thus where the external applications in Ross have permissions associated with them and with respective users such that the combination system checks if the users have permission/license to use a given external application prior to actually using the external application [since permissions and licenses are worthless if they aren't checked] to produce the responses described in Ross, where the responses are based on the determination since they wouldn't otherwise exist if there is a determination that there is no permission to use the application).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to combine prior art elements according to known methods because the prior art teaches each element claimed except for the lack of combination of elements in a single prior art reference. One of ordinary skill in the art could have combined the prior art elements according to known methods (by adding the permissions and corresponding checks to Ross's system) and in combination each element performs the same function as it does separately (the permissions don't actually alter what the applications do or how they function). The combination is the predictable results of a speech recognition system which processes natural language utterances and activates commands (as per Ross) if users have appropriate permissions/licenses to access the applications which activate the commands (as per Potter)

10. Claim 60 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Ross, as applied to claim 57, above, and further in view of Yaker (US 5,950,167).

As per Claim 60, Ross does not, but Yaker (in combination with Ross) suggests wherein the one or more processors are further caused to: obtain information relating to a license agreement that is associated with at least one of the one or more domain agents; determine that use of the at least one of the one or more domain agents to process the command or request is permitted based on the information related to the license agreement; and generate, using the at least one of the one or more domain agents, the response based on the determination that the use is permitted ("security… critical… restricts remote access… permit remote access only to the word processor and to no other folder or application… creation of text files… but not to edit email documents", col. 7, lines 51-63; "means for storing preset permissions for designated users to use said application programs" claim 14; similar to what was discussed above, where permissions can be interpreted as "licenses" to certain users to access certain programs and not others, and where at least the general concept of permitting some users to access certain programs and denying access to other programs can be applied to Ross in the manner described above in the rejection based on Ross and Potter. The combination is thus where the external applications in Ross have permissions associated with them and with respective users such that the combination system checks if the users have permission/license to use a given external application prior to actually using the external application [since permissions and licenses are worthless if

they aren't checked] to produce the responses described in Ross, where the responses are based on the determination since they wouldn't otherwise exist if there is a determination that there is no permission to use the application)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to combine prior art elements according to known methods because the prior art teaches each element claimed except for the lack of combination of elements in a single prior art reference. One of ordinary skill in the art could have combined the prior art elements according to known methods (by adding the permissions and corresponding checks to Ross's system) and in combination each element performs the same function as it does separately (the permissions don't actually alter what the applications do or how they function). The combination is the predictable results of a speech recognition system which processes natural language utterances and activates commands (as per Ross) if users have appropriate permissions/licenses to access the applications which activate the commands (as per Yaker)

Allowable Subject Matter

11. Claim 63 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

As described in the Notice of Allowability mailed 11/1/10 in Application 12/617506, Mumick et al. (US 2003/0046346) teaches synchronizing plural browsers on a plurality of mobile devices including a state manager that stores navigation histories in a data store so that a user can switch from a visual browser on one device to a voice browser on a second device without losing navigation state, but synchronization of navigation state is not the claimed synchronization of context across multiple devices (page 2).

While the claim language at issue is not identical, the limitation in claim 63 is directed to a similar concept which is also more narrow in that not only is context synchronized, but context stacks of distinct devices are synchronized.

Double Patenting

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the claims at issue are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d

1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the reference application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit http://www.uspto.gov/forms/. The filing date of the application will determine what form should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

14. Claims 50, 52, 56, 57, 61-64, 66, 68-69, are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1, 5, 10, 14, 15, of U.S. Patent No. 8,447,607. Although the claims at issue are not identical, they are not patentably distinct from each other because the claims of this application are broader claims which contain the limitations in the Patent's claims.

As per Claims 50, 52, 56, 57, 64, 66, 68, and claim 14 of U.S. Patent 8,447,607 contain a combination of all of their limitations.

As per claims 61, claims 14-15 of U.S. Patent 8,447,607 contain the model limitations of these claims (particularly the 4th limitation of claim 1 and claim 15).

As per Claims 62, 69, Claims 1 and 5 of U.S. Patent contain the first/second cognitive model limitations in the claims

As per Claim 63, its limitations are similar to those in claim 10 of the parent application's patent

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC YEN whose telephone number is (571)272-4249. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571-272-7602. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EY 1/22/14
/ERIC YEN/
Primary Examiner, Art Unit 2658

Notice of References Cited	Application/Control No. 13/898,045	Applicant(s)/Patent Under Reexamination WEIDER ET AL.	
	Examiner ERIC YEN	Art Unit 2658	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2002/0133354	09-2002	Ross et al.	704/275
*	B	US-2004/0172258	09-2004	Dominach et al.	704/277
*	C	US-2007/0043569	02-2007	Potter et al.	704/270
*	D	US-5,950,167	09-1999	Yaker, Rhoda	704/275
*	E	US-2003/0046346	03-2003	Mumick et al.	709/205
*	F	US-2005/0131673	06-2005	Koizumi et al.	704/002
*	G	US-4,829,423	05-1989	Tennant et al.	704/8
*	H	US-6,964,023	11-2005	Maes et al.	715/811
*	I	US-2002/0135618	09-2002	Maes et al.	345/767
*	J	US-2007/0043574	02-2007	Coffman et al.	704/275
*	K	US-7,003,463	02-2006	Maes et al.	704/270.1
*	L	US-2002/0040297	04-2002	Tsiao et al.	704/257
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13898045	WEIDER ET AL.
	Examiner	Art Unit
	ERIC YEN	2658

CPC- SEARCHED		
Symbol	Date	Examiner
G10L 15/19, 15/22, 15/18	1/22/14	EY

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
704	9, 270-275	1/22/14	EY

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Search (attached)	1/22/14	EY

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13898045	WEIDER ET AL.
	Examiner	Art Unit
	ERIC YEN	2658

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	10/10/2013	01/22/2014							
	50	÷	✓							
	51	÷	✓							
	52	÷	✓							
	53	÷	N							
	54	÷	N							
	55	÷	N							
	56	÷	✓							
	57	÷	✓							
	58	÷	✓							
	59	÷	✓							
	60	÷	✓							
	61	÷	N							
	62	÷	N							
	63	÷	✓							
	64	÷	✓							
	65	÷	✓							
	66	÷	✓							
	67	÷	N							
	68	÷	✓							
	69	÷	N							

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Page 00177

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	12	("20020133354" "20040172258" "20070043569" "5950167" "20030046346").pn. ("20050131673" "4829423" "6964023" "20020135618" "20070043574" "7003463" "20020040297").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 07:59
L2	0	G06F17/20.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:19
L3	0	(G06F and 17/20).ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:19
L4	0	(G06F1720).ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:20
L5	0	(G06F1720).clas.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:20
L6	493	(context adj stack$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:27
L7	56	G10L15/22.cpc. and (context adj stack$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:31
L8	13	(G10L15/22.cpc. and (context adj stack$1)) not voicebox.as.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:31
L9	2560	(G10L15/22.cpc. G10L15/18.cpc.)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:35
L10	90	(G10L15/22.cpc. and G10L15/18.cpc.)	US-PGPUB; USPAT; USOCR;	OR	OFF	2014/01/22 08:35

			EPO; JPO			
L11	79	(G10L15/22.cpc. and G10L15/18.cpc.) not voicebox.as.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:36
L12	0	G10L15/22.cpc. and G10L15/19.cpc. and G06F17/30864.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:44
L13	56	(G10L15/22.cpc. G10L15/19.cpc. G06F17/30864.cpc.) and (context adj stack$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:45
L15	313	((G10L15/22.cpc. and G10L15/19.cpc.) G06F17/30864.cpc.) and (rank$4 near5 context$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:45
L16	0	((G10L15/22.cpc. and G10L15/19.cpc.)) and (rank$4 near5 context$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:46
L17	22	((G10L15/22.cpc. and G10L15/19.cpc.)) and ((scor$4 list$4) near5 context$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:46
L18	68	((G10L15/22.cpc. and G10L15/19.cpc.))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:50
L19	3	((G10L15/22.cpc. and G10L15/19.cpc. and G10L15/18.cpc.))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:50
L20	493	(context adj stack$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:55
L22	82374	((select$4 choos$4) near5 (context$1 domain$1))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:59
L23	37594	((select$4 choos$4) near5 (context$1))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 08:59
L26	76	23 AND (G10L15/18).CPC.	US-PGPUB; USPAT; USOCR;	OR	OFF	2014/01/22 09:12

			EPO; JPO			
L27	0	G10L15/19.ccls. and ((command$1 request$1) near5 (context$1 domain$1))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 09:27
L28	29	G10L15/19.cpc. and ((command$1 request$1) near5 (context$1 domain$1))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 09:28
L29	12	G10L15/19.cpc. and ((rank$4 list$4) near5 (context$1 domain$1))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 09:31
L30	22	G06F17/30976.cpc. and ((rank$4 list$4) near5 (context$1 domain$1))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 09:36
S1	9	"704".clas. and (generat$4 near5 (context adj stack)).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 12:04
S2	77	(context adj stack$1) and "704".clas.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 12:06
S3	1	"7003463".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 12:52
S4	1	"7003463".pn. and (context adj stack)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 12:52
S5	64	"704".clas. and ((most adj recent$2) near5 context$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 12:55
S6	1	"20020133354".pn. and recogni$4	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 14:19
S7	1	"20020133354".pn. and "speech representation"	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 14:22
S8	1	"704".clas. and (ambiguous near5 DTMF)	US-PGPUB; USPAT; USOCR;	OR	OFF	2014/01/21 15:12

			EPO; JPO			
S9	65	"704".clas. and (ambiguous near5 dial$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 15:12
S10	260	"704".clas. and (confirm$4 with press$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 15:13
S11	222	"704".clas. and ((confirmation$1 confirm$4) near5 press$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 15:13
S12	60	"704".clas. and (((select$4 choos$4) near5 press$4 near5 (candidate$1 result$1)))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 15:15
S13	0	704/270-275.ccls. and ((display$4 near5 rank$4) same press$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 15:19
S14	10	704/270-275.ccls. and ((display$4 near5 ambiguous$2) same press$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 15:19
S15	88	"704".clas. and (ambiguous with display$4 with word$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 15:20
S16	57	"704".clas. and (ambiguous with display$4 with word$1) and ((speech voice) near5 recogni$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 15:21
S17	40	"704".clas. and (ambiguous with display$4 with list$4) and ((speech voice) near5 recogni$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 15:36
S18	73	"704".clas. and (ambiguous with display$4 with (select$4 choos$4))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 15:41
S19	407	"704".clas. and (ambiguous with (select$4 choos$4))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 15:46
S20	0	"704".clas. and (ambiguous with (select$4 choos$4) with desired)	US-PGPUB; USPAT; USOCR;	OR	OFF	2014/01/21 15:46

			EPO; JPO			
S21	135	"704".clas. and (ambiguous with (select$4 choos$4) with interpretation$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 15:47
S22	178	"704".clas. and (ambiguous with (select$4 choos$4)) and ((speech$1 voice$1) near5 recogni$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 15:48
S23	95	"704".clas. and (ambiguous near5 (select$4 choos$4)) and ((speech$1 voice$1) near5 recogni$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 15:48
S24	2	10/773793	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 15:53
S25	2	10/733793	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 15:54
S26	2	10/733793 and select$4	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 16:07
S27	73	"704".clas. and ((domain adj agent$1) near5 context$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 16:42
S28	50	11/200164 11/197504	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 16:45
S29	11	("704".clas. and ((domain adj agent$1) near5 context$1)) not voicebox.as.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 16:52
S30	6	704/270-275.ccls. and (licens$4 near5 applications)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 18:24
S31	5	704/270-275.ccls. and (permission$1 near5 applications)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 18:27
S32	1	13/898045 and licens$4	US-PGPUB; USPAT; USOCR;	OR	OFF	2014/01/21 18:32

			EPO; JPO			
S33	7	(synchroniz$4 near5 (context adj stack$1)).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 19:04
S34	7	(synchroniz$4 near5 (context adj stack$1))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 19:06
S35	160	(synchroniz$4 near5 (contexts))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 19:06
S36	4	(synchroniz$4 near5 (contexts)) and "704".clas.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 19:06
S37	1	"7917367".pn. and licens$4	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 19:07
S38	628	704/270-275.ccls. and (licens$4 permission$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 19:08
S39	0	704/270-275.ccls. and ((licens$4 permission$1) near5 (use))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 19:08
S40	35	704/270-275.ccls. and ((licens$4 permission$1) near5 (application$1))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 19:08
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S43	1	"5950167".pn. and application$1	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 19:10
S44	1	"5950167".pn. and preset	US-PGPUB; USPAT; USOCR;	OR	OFF	2014/01/21 19:11

			EPO; JPO			
S45	1	"5950167".pn. and restrict$4	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 19:13
S46	1	"5950167".pn. and designat$4	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 19:20
S47	5	"704".clas. and (synchroniz$4 near5 (domains contexts))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 19:27
S48	148	"704".clas. and (synchroniz$4 near5 state$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 19:32
S49	44	704/270-275.ccls. and (synchroniz$4 near5 state$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 19:32
S50	0	"20020133354".pn. and synchroniz$4	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 19:39
S51	1	"20020133354".pn. and (context adj list$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 19:40
S52	0	"20020133354".pn. and (server$1)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/21 19:41
S53	2	13/488299	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 06:55
S54	2	"8447607".pn. "7949529".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2014/01/22 07:19

1/22/2014 9:40:59 AM
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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE PATENT APPLICATION OF:	Chris WEIDER *et al.*
SERIAL NO.:	13/898,045
FILING DATE:	May 20, 2014
ATTORNEY DOCKET NO.:	090611-0422643
CONFIRMATION NO.:	6157
EXAMINER:	Eric L. Yen
ART UNIT:	2658
FOR:	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

RESPONSE TO NON-FINAL OFFICE ACTION mailed 29 January 2014

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Non-Final Office Action mailed **January 29, 2014**, please amend the above-identified application as follows:

Amendments to the Claims begin on page **2** of this paper.

Remarks begin on page **13** of this paper.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a), and any fees required therefore (including fees for net addition of claims) are hereby authorized to be charged to Deposit Account No. 033975 (**Ref. No. 090611-0422643**).

This listing of claims will replace all prior versions and listings of claims in the Application.

LISTING OF CLAIMS:

1-49. (**Cancelled**)

50. (**Currently Amended**) A system for processing natural language utterances where recognized words of the natural language utterances alone are insufficient to completely determine one or more commands or requests, the system comprising: ~~including~~

one or more physical processors ~~executing~~ programmed with one or more computer program ~~modules~~ instructions which, when executed, cause the one or more physical processors to:

generate a first context stack associated with a first device, the first context stack comprising context information that corresponds to a plurality of prior utterances;

synchronize the first context stack with a second context stack associated with a second device such that the context information of the first context stack is updated based on related context information of the second context stack;

receive a natural language utterance associated with a command or request;

determine one or more words of the natural language utterance by performing speech recognition on the natural language utterance; and

determine the command or request based on the one or more words and the updated context information.

51. (**Currently Amended**) The system of claim 50, wherein the one or more physical processors are further caused to:

prompt a user associated with the natural language utterance for one or more of additional information or confirmation regarding the command or request; and

receive a non-speech input regarding one or more of the additional information or confirmation in response to the prompt, wherein the command or request is determined further based on the non-speech input.

52. (**Currently Amended**) The system of claim 50, wherein the first context stack includes a plurality of context entries, and wherein the one or more physical processors are further caused to:

identify, from among the plurality of context entries, one or more context entries that correspond to the one or more words, wherein the updated context information includes the one or more context entries.

53. (**Withdrawn**) The system of claim 52, wherein identifying the one or more context entries comprises:

comparing the plurality of context entries with the one or more words;

generating one or more rank scores for individual context entries of the plurality of context entries based on the comparison; and

identifying, from among the plurality of context entries, the one or more context entries based on the one or more rank scores.

54. (**Withdrawn - Currently Amended**) The system of claim 53, wherein the plurality of context entries are ordered in the first context stack, and wherein the one or more physical processors are further caused to update the ordering of the plurality of context entries in the first context stack based on the one or more rank scores.

55. (**Withdrawn - Currently Amended**) The system of claim 54, wherein the natural language utterance is associated with a user, and wherein the one or more physical processors are further caused to:

receive a subsequent natural language utterance associated with the user; and

~~determining~~ determine one or more subsequent words of the subsequent natural language utterance by performing speech recognition on the subsequent natural language utterance;

identify, from among the plurality of context entries, one or more other context entries that correspond to the one or more subsequent words based on the updated ordering; and

determine a subsequent command or request based on the one or more subsequent words and the one or more other context entries.

56. (**Previously Presented**) The system of claim 52, wherein identifying the one or more context entries comprises identifying, from among the plurality of context entries, the one or more context entries that most closely correspond to the one or more words.

57. (**Currently Amended**) The system of ~~claim 50,~~ claim 52, wherein the one or more physical processors are further caused to:

identify one or more domain agents associated with the one or more context entries, wherein the one or more domain agents are configured to process the command or request; and

generate a response to the command or request using the one or more domain agents.

58. (**Currently Amended**) The system of claim 57, wherein each of the one or more domain agents comprises domain knowledge associated with a particular domain, the domain knowledge comprising: one or more of (i) a keyword; (ii) a link to an information source; (iii) a list of responses associated with a plurality commands or requests; (iv) a substitution list used to format the plurality of commands or requests; or (v) content including dictionaries, encyclopedias, or almanacs.

59. (**Previously Presented**) The system of claim 57, wherein the response comprises an aggregation of one or more responses generated by the one or more domain agents based on the command or request.

60. (**Currently Amended**) The system of claim 57, wherein the one or more physical processors are further caused to:

obtain information relating to a license agreement that is associated with at least one of the one or more domain agents;

determine, based on the information related to the license agreement, that use of the at least one of the one or more domain agents to process the command or request is permitted ~~based on the information related to the license agreement~~; and

~~generate, using~~ use, based on the determination that the use is permitted, the at least one of the one or more domain ~~agents,~~ agents to generate the response ~~based on the determination that the use is permitted~~.

61. (**Withdrawn - Currently Amended**) The system of claim 50, wherein the natural language utterance is associated with a user, and wherein the one or more physical processors are further caused to:

obtain one or more of a cognitive model or an environmental model associated with the user, wherein the cognitive model comprises information relating to one or more interactions between the user and the system, and the environmental model comprises information indicative of how noisy an environment surrounding the user is,

wherein the one or more words are determined further based on one or more of the cognitive model or the environmental model.

62. (**Withdrawn - Currently Amended**) The system of claim 50, wherein the natural language utterance is associated with a user, and wherein the one or more physical processors are further caused to:

obtain a first cognitive model that comprises information relating to one or more interactions between the user and the system; and

obtain a second cognitive model that comprises information relating to one or more interactions between the system and a plurality of users of the system,

wherein the one or more words are determined further based on the first cognitive model and the second cognitive model.

63. (**Cancelled**)

64. (**Currently Amended**) A computer-implemented method of processing natural language utterances where recognized words of the natural language utterances alone are insufficient to completely determine one or more commands or requests, the method being implemented by a computer system that includes one or more physical processors executing one or more computer program ~~modules~~ instructions which, when executed, perform the method, the method comprising:

generating, by the one or more physical processors, a first context stack associated with a first device, the first context stack comprising context information that corresponds to a plurality of prior utterances;

synchronizing the first context stack with a second context stack associated with a second device such that the context information of the first context stack is updated based on related context information of the second context stack;

receiving, at the one or more physical processors, a natural language utterance associated with a command or request;

determining, by the one or more physical processors, one or more words of the natural language utterance by performing speech recognition on the natural language utterance; and

determining, by the one or more physical processors, the command or request based on the one or more words and the updated context information.

65. (**Currently Amended**) The method of claim 64, further comprising:

prompting, by the one or more physical processors, a user associated with the natural language utterance for one or more of additional information or confirmation regarding the command or request; and

receiving, at the one or more physical processors, a non-speech input regarding one or more of the additional information or confirmation in response to the prompt, wherein the command or request is determined further based on the non-speech input.

66. (**Currently Amended**) The method of claim 64, wherein the first context stack includes a plurality of context entries, the method further comprising:

identifying, by the one or more physical processors, from among the plurality of context entries, one or more context entries that correspond to the one or more words, wherein the updated context information includes the one or more context entries.

67. (**Withdrawn**) The method of claim 66, wherein identifying the one or more context entries comprises:

comparing the plurality of context entries with the one or more words;

generating one or more rank scores for individual context entries of the plurality of context entries based on the comparison; and

identifying, from among the plurality of context entries, the one or more context entries based on the one or more rank scores.

68. (**Currently Amended**) The method of ~~claim 64,~~ claim 66, further comprising:

identifying, by the one or more physical processors, one or more domain agents associated with the one or more context entries, wherein the one or more domain agents are configured to process the command or request; and

generating, by the one or more physical processors, a response to the command or request using the one or more domain agents.

69. (**Withdrawn - Currently Amended**) The method of claim 64, wherein the natural language utterance is associated with a user, the method further comprising:

obtaining, by the one or more physical processors, a first cognitive model that comprises information relating to one or more interactions between the user and the system; and

obtaining, by the one or more physical processors, a second cognitive model that comprises information relating to one or more interactions between the system and a plurality of users of the system,

wherein the one or more words are determined further based on the first cognitive model and the second cognitive model.

70. (**New**) A computer-implemented method of processing natural language utterances where recognized words of the natural language utterances alone are insufficient to completely determine one or more commands or requests, the method being implemented by a computer system that includes one or more physical processors executing one or more computer program instructions which, when executed, perform the method, the method comprising:

generating, by the one or more physical processors, a first context set associated with a first device, the first context set comprising context information that corresponds to a plurality of prior utterances;

synchronizing the first context set with a second context set associated with a second device such that the context information of the first context set is updated based on related context information of the second context set;

receiving, at the one or more physical processors, a natural language utterance associated with a command or request;

determining, by the one or more physical processors, one or more words of the natural language utterance by performing speech recognition on the natural language utterance; and

determining, by the one or more physical processors, the command or request based on the one or more words and the updated context information.

71. (**New**) The method of claim 70, further comprising:

prompting, by the one or more physical processors, a user associated with the natural language utterance for one or more of additional information or confirmation regarding the command or request; and

receiving, at the one or more physical processors, a non-speech input regarding one or more of the additional information or confirmation in response to the prompt, wherein the command or request is determined further based on the non-speech input.

72. (**New**) The method of claim 70, wherein the first context set includes a plurality of context entries, the method further comprising:

identifying, by the one or more physical processors, from among the plurality of context entries, one or more context entries that correspond to the one or more words, wherein the updated context information includes the one or more context entries.

73. (**New**) The method of claim 72, wherein identifying the one or more context entries comprises identifying, from among the plurality of context entries, the one or more context entries that most closely correspond to the one or more words.

74. (**New**) The method of claim 72, further comprising:

identifying, by the one or more physical processors, one or more domain agents associated with the one or more context entries, wherein the one or more domain agents are configured to process the command or request; and

generating, by the one or more physical processors, a response to the command or request using the one or more domain agents.

75. (**New**) The method of claim 74, wherein each of the one or more domain agents comprises domain knowledge associated with a particular domain, the domain knowledge comprising: one or more of (i) a keyword; (ii) a link to an information source; (iii) a list of responses associated with a plurality commands or requests; (iv) a substitution list used to format the plurality of commands or requests; or (v) content including dictionaries, encyclopedias, or almanacs.

76. (**New**) The method of claim 74, wherein the response comprises an aggregation of one or more responses generated by the one or more domain agents based on the command or request.

77. (**New**) The method of claim 74, further comprising:

obtaining, by the one or more physical processors, information relating to a license agreement that is associated with at least one of the one or more domain agents;

determining, by the one or more physical processors, based on the information related to the license agreement, that use of the at least one of the one or more domain agents to process the command or request is permitted; and

using, by the one or more physical processors, based on the determination that the use is permitted, the at least one of the one or more domain agents to generate the response.

REMARKS

In response to the Non-Final Office Action mailed **January 29, 2014** (hereinafter "Office Action"), claims 50-52, 54, 55, 57, 58, 60-62, 64-66, 68, 69 have been amended, claim 63 has been cancelled without prejudice or disclaimer, and claims 70-77 have been newly added. Claims 53-55, 61, 62, 67, and 69 remain withdrawn. Therefore, claims 50-62 and 64-77 are now pending. Support for the instant amendments is provided throughout the as-filed Specification. Thus, no new matter has been added. In view of the foregoing amendments and following comments, allowance of all the claims pending in the application is respectfully requested.

INFORMATION DISCLOSURE STATEMENT

Applicants are submitting herewith a Supplemental Information Disclosure Statement and respectfully request that the Examiner consider the cited references and provide a signed copy of the Form PTO-1449 for this submission with the next Office Action.

DOUBLE PATENTING REJECTION

Solely to expedite prosecution of this application, and without acknowledging the propriety of the alleged basis for the rejection, Applicants will consider filing a Terminal Disclaimer once the remaining claim rejections have been withdrawn. Applicants further note that filing a Terminal Disclaimer to obviate a rejection based on non-statutory double patenting does not constitute an admission of the propriety of the rejection. *See Quad Environmental Technologies Corp. v. Union Sanitary District*, 946 F.2d 870 (Fed. Cir. 1991) (indicating that "filing of a terminal disclaimer simply serves the statutory function of removing the rejection of double patenting, and raises neither a presumption nor estoppel on the merits of the rejection.").

ALLOWABLE SUBJECT MATTER AND 35 U.S.C. §§ 101, 103, 112 REJECTIONS

Applicants thank Examiner Yen for indicating the subject matter of claim 63 as allowable. [Office Action, pg. 21]. Solely to expedite prosecution of this application, and without acknowledging the propriety of the alleged rejections under 35 U.S.C. § 103, the claims have been amended in accordance with the Examiner's indication of allowable subject matter. In particular, independent claims 50 and 64 have each been amended to include the subject matter of claim 63 (which is now cancelled). In addition, the instant amendments have rendered the alleged rejections under 35 U.S.C. §§ 101 and 112 moot. Accordingly, withdrawn of the alleged rejections under 35 U.S.C. §§ 101, 103, and 112 is earnestly sought.

Applicants expressly reserve the right to pursue the subject matter of the claims as pending prior to the entry of the instant amendments in one or more continuing applications.

CONCLUSION

Having addressed each of the foregoing rejections, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

Date: **April 29, 2014**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Chris WEIDER *et al.*	CONFIRMATION NO.:	6157
SERIAL NUMBER :	13/898,045	EXAMINER:	Eric L. Yen
FILING DATE :	May 20, 2013	ART UNIT:	2658
FOR :	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS		

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicants hereby make of record in the above-identified application the documents listed on the attached Form PTO-1449.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This Information Disclosure Statement is being filed more than three months after the filing date of a national application other than a continued prosecution application under 37 C.F.R. § 1.53(d), or more than three months after the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in an international application, and after the mailing date of the first Office Action on the merits, but before the mailing date of any of a Final Action under 37 C.F.R. § 1.113, a Notice of Allowance under 37 C.F.R. § 1.311, or an action that otherwise closes prosecution in the application. 37 C.F.R. § 1.97(c).

Please charge the $90.00 fee [37 C.F.R. § 1.17(p)] to Deposit Account No. 03-3975. In addition, please charge any fee deficiencies, or credit any overpayment, to Deposit Account No. 03-3975 as needed to ensure consideration of the Information Disclosure Statement.

The foreign patent documents (except for References 4Y, 4Z, and 4AA) and the non-patent literature ("Other Documents") were cited by or submitted to the Office in Application No. 13/488,299, filed June 4, 2012, which is relied upon for an earlier filing date under 35 U.S.C. § 120. Thus copies of these documents are not attached. 37 C.F.R. § 1.98(d).

Google Exhibit 1012
Page 00201

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449.

Respectfully submitted,

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	090611-0422643	13/898,045
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	Chris WEIDER *et al.*	
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*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	1A	4,430,669	02/07/1984	Cheung	358	122	
	1B	4,821,027	04/11/1989	Mallory *et al.*	340	521	
	1C	4,910,784	03/20/1990	Doddington *et al.*	381	43	
	1D	5,027,406	06/25/1991	Roberts *et al.*	381	43	
	1E	5,155,743	10/13/1992	Jacobs	375	28	
	1F	5,164,904	11/17/1992	Sumner	364	436	
	1G	5,208,748	05/04/1993	Flores *et al.*	364	419	
	1H	5,274,560	12/28/1993	LaRue	364	444	
	1I	5,357,596	10/18/1994	Takebayashi *et al.*	395	2.84	
	1J	5,377,350	12/27/1994	Skinner	395	600	
	1K	5,386,556	01/31/1995	Hedin et al.	395	600	
	1L	5,424,947	06/13/1995	Nagao et al.	364	419.08	
	1M	5,471,318	11/28/1995	Ahuja et al.	358	400	
	1N	5,475,733	12/12/1995	Eisdorfer et al.	379	52	
	1O	5,488,652	01/30/1996	Bielby *et al.*	379	88	
	1P	5,499,289	03/12/1996	Bruno et al.	379	220	
	1Q	5,500,920	03/19/1996	Kupiec	395	2.79	
	1R	5,517,560	05/14/1996	Greenspan	379	114	
	1S	5,533,108	07/02/1996	Harris et al.	379	201	
	1T	5,537,436	07/16/1996	Bottoms et al.	375	222	
	1U	5,539,744	07/23/1996	Chu et al.	370	60	
	1V	4,910,784	03/20/1990	Doddington *et al.*	381	43	
	1W	5,027,406	06/25/1991	Roberts *et al.*	381	43	

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	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO
	1X	1 320 043 A2	06/18/2003	Europe				
	1Y	1 646 037	04/12/2006	Europe				
	1Z	WO 99/46763	09/16/1999	International				
	1AA	WO 00/21232	04/13/2000	International				
	1BB	WO 00/46792	08/10/2000	International				

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	1CC	REUTERS, "IBM to Enable Honda Drivers to Talk to Cars", Charles Schwab & Co., Inc., July 28, 2002, 1 page.
	1DD	LIN, Bor-shen, *et al.*, "A Distributed Architecture for Cooperative Spoken Dialogue Agents with Coherent Dialogue State and History", ASRU'99, 1999, 4 pages.

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

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	2A	5,557,667	09/17/1996	Bruno et al.	379	201	
	2B	5,559,864	09/24/1996	Kennedy, Jr.	379	59	
	2C	5,563,937	10/08/1996	Bruno et al.	379	201	
	2D	5,577,165	11/19/1996	Takebayashi et al.	395	2.84	
	2E	5,590,039	12/31/1996	Ikeda et al.	395	759	
	2F	5,608,635	03/04/1997	Tamai	364	449.3	
	2G	5,617,407	04/01/1997	Bareis	369	275.3	
	2H	5,633,922	05/27/1997	August et al.	379	220	
	2I	5,652,570	07/29/1997	Lepkofker	340	573	
	2J	5,675,629	10/07/1997	Raffel et al.	379	58	
	2K	5,696,965	12/09/1997	Dedrick	395	610	
	2L	5,708,422	01/13/1998	Blonder et al.	340	825.34	
	2M	5,721,938	02/24/1998	Stuckey	395	754	
	2N	5,722,084	02/24/1998	Chakrin et al.	455	551	
	2O	5,740,256	04/14/1998	Castello Da Costa *et al.*	361	94.7	
	2P	5,742,763	04/21/1998	Jones	395	200.3	
	2Q	5,748,841	05/05/1998	Morin *et al.*	395	2.66	
	2R	5,748,974	05/05/1998	Johnson	395	759	
	2S	5,752,052	05/12/1998	Richardson et al.	395	759	
	2T	5,754,784	05/19/1998	Garland et al.	395	200.49	
	2U	5,761,631	06/02/1998	Nasukawa	704	9	
	2V	5,774,841	06/30/1998	Salazar *et al.*	704	225	
	2W	5,774,859	06/30/1998	Houser *et al.*	704	275	

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	2X	WO 01/78065	10/18/2001	International				
	2Y	WO 2004/072954	08/26/2004	International				
	2Z	WO 2007/019318	02/15/2007	International				
	2AA	WO 2007/021587	02/22/2007	International				
	2BB	WO 2007/027546	03/08/2007	International				

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	2CC	KUHN, Thomas, *et al.*, "Hybrid In-Car Speech Recognition for Mobile Multimedia Applications", Vehicular Technology Conference, IEEE, July 1999, pages 2009-2013.
	2DD	BELVIN, Robert, *et al.*, "Development of the HRL Route Navigation Dialogue System", Proceedings of the First International Conference on Human Language Technology Research, San Diego, 2001, pages 1-5.

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	3A	5,794,050	08/11/1998	Dahlgren et al.	395	708	
	3B	5,794,196	08/11/1998	Yegnanarayanan *et al.*	704	255	
	3C	5,797,112	08/18/1998	Komatsu *et al.*	701	201	
	3D	5,799,276	08/25/1998	Komissarchik *et al.*	704	251	
	3E	5,802,510	09/01/1998	Jones	707	2	
	3F	5,832,221	11/03/1998	Jones	375	200.36	
	3G	5,839,107	11/17/1998	Gupta *et al.*	704	270	
	3H	5,848,396	12/08/1998	Gerace	705	10	
	3I	5,855,000	12/29/1998	Waibel *et al.*	704	235	
	3J	5,867,817	02/02/1999	Catallo *et al.*	704	255	
	3K	5,878,385	03/02/1999	Bralich *et al.*	704	9	
	3L	5,878,386	03/02/1999	Coughlin	704	10	
	3M	5,892,813	04/06/1999	Morin *et al.*	379	88.01	
	3N	5,892,900	04/06/1999	Ginter *et al.*	395	186	
	3O	5,895,464	04/20/1999	Bhandari *et al.*	707	3	
	3P	5,895,466	04/20/1999	Goldberg et al.	707	5	
	3Q	5,897,613	04/27/1999	Chan	704	210	
	3R	5,902,347	05/11/1999	Backman *et al.*	701	200	
	3S	5,911,120	06/08/1999	Jarett et al.	455	417	
	3T	5,918,222	06/29/1999	Fukui *et al.*	707	1	
	3U	5,926,784	07/20/1999	Richardson et al.	704	9	
	3V	5,933,822	08/03/1999	Braden-Harder et al.	707	5	
	3W	5,953,393	09/14/1999	Culbreth et al.	379	88.25	

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	3X	WO 2007/027989	03/08/2007	International				
	3Y	WO 2008/098039	08/14/2008	International				
	3Z	WO 2008/118195	10/02/2008	International				
	3AA	WO 2009/075912	06/18/2009	International				
	3BB	WO 2009/145796	12/03/2009	International				

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	3CC	LIND, R., *et al.*, "The Network Vehicle—A Glimpse into the Future of Mobile Multi-Media", IEEE Aerosp. Electron. Systems Magazine, Volume 14, No. 9, September 1999, pages 27-32.
	3DD	ZHAO, Yilin, "Telematics: Safe and Fun Driving", IEEE Intelligent Systems, Volume 17, Issue 1, 2002, pages 10-14.

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	4A	5,960,397	09/28/1999	Rahim	704	244	
	4B	5,960,399	09/28/1999	Barclay *et al.*	704	270	
	4C	5,960,447	09/28/1999	Holt *et al.*	707	500	
	4D	5,963,894	10/05/1999	Richardson et al.	704	9	
	4E	5,963,940	10/05/1999	Liddy et al.	707	5	
	4F	5,987,404	11/16/1999	Della Pietra et al.	704	9	
	4G	5,991,721	11/23/1999	Asano et al.	704	257	
	4H	5,995,119	11/30/1999	Cosatto et al.	345	473	
	4I	5,995,928	11/30/1999	Nguyen *et al.*	704	251	
	4J	6,009,382	12/28/1999	Martino et al.	704	1	
	4K	6,014,559	01/11/2000	Amin	455	413	
	4L	6,018,708	01/25/2000	Dahan *et al.*	704	244	
	4M	6,021,384	02/01/2000	Gorin et al.	704	1	
	4N	6,028,514	02/22/2000	Lemelson *et al.*	340	539	
	4O	6,035,267	03/07/2000	Watanabe *et al.*	704	1	
	4P	6,044,347	03/28/2000	Abella et al.	704	272	
	4Q	6,049,602	04/11/2000	Foladare et al.	379	265	
	4R	6,049,607	04/11/2000	Marash *et al.*	379	410	
	4S	6,058,187	05/02/2000	Chen	380	21	
	4T	6,067,513	05/23/2000	Ishimitsu	704	233	
	4U	6,076,059	06/13/2000	Glickman *et al.*	704	260	
	4V	6,078,886	06/20/2000	Dragosh et al.	704	270	
	4W	6,081,774	06/27/2000	De Hita et al.	704	9	

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	4X	WO 2010/096752	08/26/2010	International				
	4Y	2006-146881	06/08/2006	Japan				
	4Z	2008-027454	02/07/2008	Japan				
	4AA	2008-139928	06/19/2008	Japan				

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	4BB	CHAI *et al.*, "MIND: A Semantics-Based Multimodal Interpretation Framework for Conversational System", Proceedings of the International CLASS Workshop on Natural, Intelligent and Effective Interaction in Multimodal Dialogue Systems, June 2002, pages 37-46.
	4CC	CHEYER *et al.*, "Multimodal Maps: An Agent-Based Approach", International Conference on Cooperative Multimodal Communication (CMC/95), May 24-26, 1995, pages 111-121.
	4DD	ELIO *et al.*, "On Abstract Task Models and Conversation Policies" in Workshop on Specifying and Implementing Conversation Policies, Autonomous Agents '99, Seattle, 1999, 10 pages.

EXAMINER	DATE CONSIDERED

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	5B	6,101,241	08/08/2000	Boyce et al.	379	88.01	
	5C	6,108,631	08/22/2000	Ruhl	704	270	
	5D	6,119,087	09/12/2000	Kuhn et al.	704	270	
	5E	6,122,613	09/19/2000	Baker	704	235	
	5F	6,134,235	10/17/2000	Goldman et al.	370	352	
	5G	6,144,667	11/07/2000	Doshi et al.	370	401	
	5H	6,144,938	11/07/2000	Surace *et al.*	704	257	
	5I	6,154,526	11/28/2000	Dahlke *et al.*	379	88.03	
	5J	6,160,883	12/12/2000	Jackson et al.	379	230	
	5K	6,167,377	12/26/2000	Gillick *et al.*	704	240	
	5L	6,173,266	01/09/2001	Marx *et al.*	704	270	
	5M	6,173,279	01/09/2001	Levin et al.	707	5	
	5N	6,175,858	01/16/2001	Bulfer *et al.*	709	206	
	5O	6,185,535	02/06/2001	Hedin *et al.*	704	270	
	5P	6,188,982	02/13/2001	Chiang	704	256	
	5Q	6,192,110	02/20/2001	Abella *et al.*	379	88.01	
	5R	6,192,338	02/20/2001	Haszto *et al.*	704	257	
	5S	6,195,634	02/27/2001	Dudemaine *et al.*	704	231	
	5T	6,195,651	02/27/2001	Handel *et al.*	707	2	
	5U	6,199,043	03/06/2001	Happ	704	272	
	5V	6,208,964	03/27/2001	Sabourin	704	244	
	5W	6,208,972	03/27/2001	Grant *et al.*	704	275	

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	5X	TURUNEN, "Adaptive Interaction Methods in Speech User Interfaces", Conference on Human Factors in Computing Systems, Seattle, Washington, 2001, pages 91-92.
	5Y	MAO, Mark Z., "Automatic Training Set Segmentation for Multi-Pass Speech Recognition", Department of Electrical Engineering, Stanford University, CA, copyright 2005, IEEE, pages I-685 to I-688.
	5Z	VANHOUCKE, Vincent, "Confidence Scoring and Rejection Using Multi-Pass Speech Recognition", Nuance Communications, Menlo Park, CA, 2005, 4 pages.

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	6A	6,219,346	04/17/2001	Maxemchuk	370	338	
	6B	6,219,643	04/17/2001	Cohen *et al.*	704	257	
	6C	6,226,612	05/01/2001	Srenger *et al.*	704	256	
	6D	6,233,556	05/15/2001	Teunen *et al.*	704	250	
	6E	6,233,559	05/15/2001	Balakrishnan	704	275	
	6F	6,233,561	05/15/2001	Junqua *et al.*	704	277	
	6G	6,236,968	05/22/2001	Kanevsky *et al.*	704	275	
	6H	6,246,981	06/12/2001	Papineni *et al.*	704	235	
	6I	6,246,990	06/12/2001	Happ	704	275	
	6J	6,266,636	07/24/2001	Kosaka *et al.*	704	244	
	6K	6,269,336	07/31/2001	Ladd *et al.*	704	270	
	6L	6,272,455	08/07/2001	Hoshen *et al.*	704	1	
	6M	6,275,231	08/14/2001	Obradovich	345	349	
	6N	6,278,377	08/21/2001	DeLine *et al.*	340	815.4	
	6O	6,278,968	08/21/2001	Franz *et al.*	704	3	
	6P	6,288,319	09/11/2001	Catona	84	609	
	6Q	6,292,767	09/18/2001	Jackson *et al.*	704	1	
	6R	6,301,560	10/09/2001	Masters	704	251	
	6S	6,308,151	10/23/2001	Smith	704	235	
	6T	6,314,402	11/06/2001	Monaco et al.	704	275	
	6U	6,321,196	11/20/2001	Franceschi	704	243	
	6V	6,356,869	03/12/2002	Chapados *et al.*	704	275	
	6W	6,362,748	03/26/2002	Huang	340	901	

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	6X	WENG, Fuliang, *et al.*, "Efficient Lattice Representation and Generation", Speech Technology and Research Laboratory, SRI International, Menlo Park, CA, 1998, 4 pages.
	6Y	EL MELIANI *et al.*, "A Syllabic-Filler-Based Continuous Speech Recognizer for Unlimited Vocabulary", Canadian Conference on Electrical and Computer Engineering, Volume 2, September 5-8, 1995, pages 1007-1010.

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	7B	6,366,886	04/02/2002	Dragosh et al.	704	270.1	
	7C	6,374,214	04/16/2002	Friedland *et al.*	704	235	
	7D	6,377,913	04/23/2002	Coffman *et al.*	704	8	
	7E	6,381,535	04/30/2002	Durocher *et al.*	701	202	
	7F	6,385,596	05/07/2002	Wiser *et al.*	705	51	
	7G	6,385,646	05/07/2002	Brown et al.	709	217	
	7H	6,393,403	05/21/2002	Majaniemi	704	275	
	7I	6,393,428	05/21/2002	Miller et al.	707	102	
	7J	6,397,181	05/28/2002	Li *et al.*	704	256	
	7K	6,404,878	06/11/2002	Jackson et al.	379	221.01	
	7L	6,405,170	06/11/2002	Phillips *et al.*	704	270	
	7M	6,408,272	06/18/2002	White *et al.*	704	270.1	
	7N	6,411,810	06/25/2002	Maxemchuk	455	453	
	7O	6,411,893	06/25/2002	Ruhl	701	207	
	7P	6,415,257	07/02/2002	Junqua *et al.*	704	275	
	7Q	6,418,210	07/09/2002	Sayko	379	142.15	
	7R	6,420,975	07/16/2002	DeLine *et al.*	340	815.4	
	7S	6,429,813	08/06/2002	Feigen	342	357.13	
	7T	6,430,285	08/06/2002	Bauer et al.	379	265.01	
	7U	6,430,531	08/06/2002	Polish	704	257	
	7V	6,434,523	08/13/2002	Monaco	704	257	
	7W	6,434,524	08/13/2002	Weber	704	257	

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	7X	ARRINGTON, Michael, "Google Redefines GPS Navigation Landscape: Google Maps Navigation for Android 2.0", TechCrunch, printed from the Internet <http://www.techcrunch.com/2009/10/28/google-redefines-car-gps-navigation-google-maps-navigation-android/>, October 28, 2009, 4 pages.
	7Y	BAZZI, Issam *et al.*, "Heterogeneous Lexical Units for Automatic Speech Recognition: Preliminary Investigations", Processing of the IEEE International Conference on Acoustics, Speech, and Signal Processing, Volume 3, June 5-9, 2000, XP010507574, pages 1257-1260.

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	8B	6,442,522	08/27/2002	Carberry et al.	704	257	
	8C	6,446,114	09/03/2002	Bulfer et al.	709	206	
	8D	6,453,153	09/17/2002	Bowker et al.	455	67.4	
	8E	6,453,292	09/17/2002	Ramaswamy et al.	704	235	
	8F	6,456,711	09/24/2002	Cheung et al.	379	265.09	
	8G	6,456,974	09/24/2002	Baker *et al.*	704	270.1	
	8H	6,466,654	10/15/2002	Cooper *et al.*	379	88.01	
	8I	6,466,899	10/15/2002	Yano *et al.*	704	1	
	8J	6,470,315	10/22/2002	Netsch *et al.*	704	256	
	8K	6,487,494	11/26/2002	Odinak *et al.*	701	202	
	8L	6,487,495	11/26/2005	Gale *et al.*	701	209	
	8M	6,498,797	12/24/2002	Anerousis et al.	370	522	
	8N	6,499,013	12/24/2002	Weber	704	257	
	8O	6,501,833	12/31/2002	Phillips *et al.*	379	88.07	
	8P	6,501,834	12/31/2002	Milewski et al.	379	93.24	
	8Q	6,505,155	01/07/2003	Vanbuskirk *et al.*	704	246	
	8R	6,510,417	01/21/2003	Woods *et al.*	704	275	
	8S	6,513,006	01/28/2003	Howard *et al.*	704	257	
	8T	6,522,746	02/18/2003	Marchok *et al.*	379	406.03	
	8U	6,523,061	02/18/2003	Halverson et al.	709	202	
	8V	6,532,444	03/11/2003	Weber	704	257	
	8W	6,539,348	03/25/2003	Bond et al.	704	9	

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	8Y	"Statement in Accordance with the Notice from the European Patent Office dated 1 October 2007 Concerning Business Methods (OJ EPO 11/2007, 592-593), XP002456252

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	9A	6,549,629	04/15/2003	Finn *et al.*	381	92	
	9B	6,553,372	04/22/2003	Brassell et al.	707	5	
	9C	6,556,970	04/29/2003	Sasaki *et al.*	704	257	
	9D	6,556,973	04/29/2003	Lewin	704	277	
	9E	6,560,576	05/06/2003	Cohen et al.	704	270	
	9F	6,560,590	05/06/2003	Shwe *et al.*	706	55	
	9G	6,567,778	05/20/2003	Chao Chang et al.	704	257	
	9H	6,567,797	05/20/2003	Schuetze *et al.*	707	2	
	9I	6,570,555	05/27/2003	Prevost *et al.*	345	156	
	9J	6,570,964	05/27/2003	Murveit et al.	379	67.1	
	9K	6,571,279	05/27/2003	Herz *et al.*	709	217	
	9L	6,574,597	06/03/2003	Mohri *et al.*	704	251	
	9M	6,574,624	06/03/2003	Johnson et al.	707	5	
	9N	6,578,022	06/10/2003	Foulger *et al.*	706	45	
	9O	6,581,103	06/17/2003	Dengler	709	231	
	9P	6,584,439	06/24/2003	Geilhufe *et al.*	704	270	
	9Q	6,587,858	07/01/2003	Strazza	707	102	
	9R	6,591,239	07/08/2003	McCall *et al.*	704	275	
	9S	6,594,257	07/15/2003	Doshi et al.	370	352	
	9T	6,594,367	07/15/2003	Marash *et al.*	381	92	
	9U	6,598,018	07/22/2003	Junqua	704	251	
	9V	6,601,026	07/29/2003	Appelt *et al.*	704	9	
	9W	6,604,075	08/05/2003	Brown *et al.*	704	270.1	

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	10B	6,606,598	08/12/2003	Holthouse *et al.*	704	275	
	10C	6,611,692	08/26/2003	Raffel et al.	455	552	
	10D	6,614,773	09/02/2003	Maxemchuk	370	337	
	10E	6,615,172	09/02/2003	Bennett *et al.*	704	257	
	10F	6,622,119	09/16/2003	Ramaswamy *et al.*	704	9	
	10G	6,629,066	09/30/2003	Jackson et al.	704	9	
	10H	6,631,346	10/07/2003	Karaorman *et al.*	704	9	
	10I	6,631,351	10/07/2003	Ramachandran *et al.*	704	270	
	10J	6,633,846	10/14/2003	Bennett *et al.*	704	257	
	10K	6,636,790	10/21/2003	Lightner *et al.*	701	33	
	10L	6,643,620	11/04/2003	Contolini *et al.*	704	270	
	10M	6,650,747	11/18/2003	Bala et al.	379	265.06	
	10N	6,658,388	12/02/2003	Kleindienst *et al.*	704	275	
	10O	6,678,680	01/13/2004	Woo	707	6	
	10P	6,681,206	01/20/2004	Gorin *et al.*	704	243	
	10Q	6,691,151	02/10/2004	Cheyer et al.	709	202	
	10R	6,701,294	03/02/2004	Ball *et al.*	704	257	
	10S	6,704,396	03/09/2004	Parolkar *et al.*	379	88.17	
	10T	6,704,576	03/09/2004	Brachman *et al.*	455	503	
	10U	6,704,708	03/09/2004	Pickering	704	235	
	10V	6,707,421	03/16/2004	Drury *et al.*	342	357.1	
	10W	6,708,150	03/16/2004	Hirayama *et al.*	704	243	

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	11B	6,721,633	04/13/2004	Funk *et al.*	701	1	
	11C	6,721,706	04/13/2004	Strubbe *et al.*	704	275	
	11D	6,726,636	04/27/2004	Der Ghazarian *et al.*	600	532	
	11E	6,735,592	05/11/2004	Neumann *et al.*	707	101	
	11F	6,739,556	05/25/2004	Langston	244	189	
	11G	6,741,931	05/25/2004	Kohut *et al.*	701	209	
	11H	6,742,021	05/25/2004	Halverson *et al.*	709	218	
	11I	6,745,161	06/01/2004	Arnold *et al.*	704	7	
	11J	6,751,591	06/15/2004	Gorin *et al.*	704	257	
	11K	6,751,612	06/15/2004	Schuetze *et al.*	707	4	
	11L	6,754,485	06/22/2004	Obradovich *et al.*	455	414.1	
	11M	6,754,627	06/22/2004	Woodward	704	235	
	11N	6,757,544	06/29/2004	Rangarajan *et al.*	455	456.1	
	11O	6,757,718	06/29/2004	Halverson *et al.*	709	218	
	11P	6,795,808	09/21/2004	Strubbe *et al.*	704	275	
	11Q	6,801,604	10/05/2004	Maes *et al.*	379	88.17	
	11R	6,801,893	10/05/2004	Backfried *et al.*	704	257	
	11S	6,813,341	11/02/2004	Mahoney	379	88.01	
	11T	6,829,603	12/07/2004	Chai *et al.*	707	5	
	11U	6,832,230	12/14/2004	Zilliacus *et al.*	707	203	
	11V	6,833,848	12/21/2004	Wolff *et al.*	345	719	
	11W	6,850,603	02/01/2005	Eberle *et al.*	379	88.16	

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	12C	6,868,380	03/15/2005	Kroeker	704	240	
	12D	6,868,385	03/15/2005	Gerson	704	275	
	12E	6,873,837	03/29/2005	Yoshioka *et al.*	455	321	
	12F	6,877,001	04/05/2005	Wolf *et al.*	707	3	
	12G	6,877,134	04/05/2005	Fuller *et al.*	715	500.1	
	12H	6,901,366	05/31/2005	Kuhn *et al.*	704	275	
	12I	6,910,003	06/21/2005	Arnold *et al.*	704	4	
	12J	6,912,498	06/28/2005	Stevens *et al.*	704	235	
	12K	6,915,126	07/05/2005	Mazzara, Jr.	455	411	
	12L	6,928,614	08/09/2005	Everhart	715	728	
	12M	6,934,756	08/23/2005	Maes	709	227	
	12N	6,937,977	08/30/2005	Gerson	704	201	
	12O	6,937,982	08/30/2005	Kitaoka *et al.*	704	252	
	12P	6,944,594	09/13/2005	Busayapongchai *et al.*	704	275	
	12Q	6,950,821	09/27/2005	Faybishenko *et al.*	707	10	
	12R	6,954,755	10/11/2005	Reisman	707	10	
	12S	6,959,276	10/25/2005	Droppo *et al.*	704	226	
	12T	6,961,700	11/01/2005	Mitchell *et al.*	704	235	
	12U	6,963,759	11/08/2005	Gerson	455	563	
	12V	6,968,311	11/22/2005	Knockeart *et al.*	704	270	
	12W	6,973,387	12/06/2005	Masclet *et al.*	701	211	

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	13B	6,980,092	12/27/2005	Turnbull *et al.*	340	425.5	
	13C	6,983,055	01/03/2006	Luo	381	313	
	13D	6,990,513	01/24/2006	Belfiore *et al.*	709	203	
	13E	6,996,531	02/07/2006	Korall *et al.*	704	270	
	13F	7,016,849	03/21/2006	Arnold *et al.*	704	275	
	13G	7,020,609	03/28/2006	Thrift *et al.*	704	270.1	
	13H	7,024,364	04/04/2006	Guerra *et al.*	704	270	
	13I	7,027,586	04/11/2006	Bushey *et al.*	379	265.09	
	13J	7,027,975	04/11/2006	Pazandak *et al.*	704	9	
	13K	7,035,415	04/25/2006	Belt *et al.*	381	92	
	13L	7,036,128	04/25/2006	Julia *et al.*	719	317	
	13M	7,043,425	05/09/2006	Pao	704	211	
	13N	7,054,817	05/30/2006	Shao	704	270	
	13O	7,058,890	06/06/2006	George *et al.*	715	728	
	13P	7,062,488	06/13/2006	Reisman	707	8	
	13Q	7,069,220	06/27/2006	Coffman *et al.*	704	275	
	13R	7,072,834	07/04/2006	Zhou	704	244	
	13S	7,076,362	07/11/2006	Ohtsuji *et al.*	701	211	
	13T	7,082,469	07/25/2006	Gold *et al.*	709	231	
	13U	7,085,708	08/01/2006	Manson	704	9	
	13V	7,092,928	08/15/2006	Elad *et al.*	706	60	
	13W	7,107,210	09/12/2006	Deng *et al.*	704	226	

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	14A	7,107,218	09/12/2006	Preston	704	270	
	14B	7,110,951	09/19/2006	Lemelson *et al.*	704	270	
	14C	7,127,400	10/24/2006	Koch	704	270.1	
	14D	7,130,390	10/31/2006	Abburi	379	88.17	
	14E	7,136,875	11/14/2006	Anderson *et al.*	707	104.1	
	14F	7,137,126	11/14/2006	Coffman *et al.*	719	328	
	14G	7,143,037	11/28/2006	Chestnut	704	251	
	14H	7,143,039	11/28/2006	Stifelman *et al.*	704	270	
	14I	7,146,319	12/05/2006	Hunt	704	254	
	14J	7,149,696	12/12/2006	Shimizu *et al.*	705	1	
	14K	7,165,028	01/16/2007	Gong	704	233	
	14L	7,170,993	01/30/2007	Anderson *et al.*	379	265.09	
	14M	7,171,291	01/30/2007	Obradovich	701	29	
	14N	7,174,300	02/06/2007	Bush	704	275	
	14O	7,177,798	02/13/2007	Hsu *et al.*	704	9	
	14P	7,184,957	02/27/2007	Brookes *et al.*	704	246	
	14Q	7,190,770	03/13/2007	Ando *et al.*	379	88.01	
	14R	7,197,069	03/27/2007	Agazzi *et al.*	375	233	
	14S	7,197,460	03/27/2007	Gupta *et al.*	704	270.1	
	14T	7,203,644	04/10/2007	Anderson *et al.*	704	246	
	14U	7,206,418	04/17/2007	Yang *et al.*	381	92	
	14V	7,207,011	04/17/2007	Mulvey *et al.*	715	812	
	14W	7,215,941	05/08/2007	Beckmann *et al.*	455	404.1	

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	15A	7,228,276	06/05/2007	Omote *et al.*	704	243	
	15B	7,231,343	06/12/2007	Treadgold *et al.*	704	9	
	15C	7,236,923	06/26/2007	Gupta	704	9	
	15D	7,254,482	08/07/2007	Kawasaki *et al.*	701	211	
	15E	7,272,212	09/18/2007	Eberle *et al.*	379	88.17	
	15F	7,277,854	10/02/2007	Bennett *et al.*	704	257	
	15G	7,283,829	10/16/2007	Christenson *et al.*	455	461	
	15H	7,283,951	10/16/2007	Marchisio *et al.*	704	9	
	15I	7,289,606	10/30/2007	Sibal *et al.*	379	52	
	15J	7,299,186	11/20/2007	Kuzunuki *et al.*	704	270.1	
	15K	7,301,093	11/27/2007	Sater *et al.*	84	615	
	15L	7,305,381	12/04/2007	Poppink *et al.*	1	1	
	15M	7,321,850	01/22/2008	Wakita	704	10	
	15N	7,328,155	02/05/2008	Endo *et al.*	704	251	
	15O	7,337,116	02/26/2008	Charlesworth *et al.*	704	254	
	15P	7,340,040	03/04/2008	Saylor *et al.*	379	67.1	
	15Q	7,366,285	04/29/2008	Parolkar *et al.*	379	88.17	
	15R	7,366,669	04/29/2008	Nishitani *et al.*	704	256	
	15S	7,376,645	05/20/2008	Bernard	707	3	
	15T	7,386,443	06/10/2008	Parthasarathy *et al.*	704	201	
	15U	7,398,209	07/08/2008	Kennewick *et al.*	704	255	
	15V	7,406,421	07/29/2008	Odinak *et al.*	704	275	
	15W	7,415,414	08/19/2008	Azara *et al.*	704	270	

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	16A	7,421,393	09/02/2008	Di Fabbrizio *et al.*	704	275	
	16B	7,424,431	09/09/2008	Greene *et al.*	704	270	
	16C	7,447,635	11/04/2008	Konopka *et al.*	704	275	
	16D	7,451,088	11/11/2008	Ehlen *et al.*	704	270.1	
	16E	7,454,608	11/18/2008	Gopalakrishnan *et al.*	713	100	
	16F	7,461,059	12/02/2008	Richardson *et al.*	707	5	
	16G	7,472,020	12/30/2008	Brulle-Drews	701	211	
	16H	7,472,060	12/30/2008	Gorin *et al.*	704	240	
	16I	7,472,075	12/30/2008	Odinak *et al.*	705	26	
	16J	7,477,909	01/13/2009	Roth	455	466	
	16K	7,478,036	01/13/2009	Shen *et al.*	704	9	
	16L	7,487,088	02/03/2009	Gorin *et al.*	704	240	
	16M	7,487,110	02/03/2009	Bennett *et al.*	705	26	
	16N	7,493,259	02/17/2009	Jones *et al.*	704	257	
	16O	7,493,559	02/17/2009	Wolff *et al.*	715	727	
	16P	7,502,672	03/10/2009	Kolls	701	29	
	16Q	7,502,738	03/10/2009	Kennewick *et al.*	704	257	
	16R	7,516,076	04/07/2009	Walker *et al.*	704	275	
	16S	7,529,675	05/05/2009	Maes	704	270.1	
	16T	7,536,297	05/19/2009	Byrd *et al.*	704	10	
	16U	7,536,374	05/19/2009	Au	706	55	
	16V	7,542,894	06/02/2009	Murata	704	9	
	16W	7,546,382	06/09/2009	Healey *et al.*	709	246	

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	17A	7,548,491	06/16/2009	Macfarlane	367	198	
	17B	7,552,054	06/23/2009	Stifelman *et al.*	704	270	
	17C	7,558,730	07/07/2009	Davis *et al.*	704	235	
	17D	7,574,362	08/11/2009	Walker *et al.*	704	275	
	17E	7,577,244	08/18/2009	Taschereau	379	218.01	
	17F	7,606,708	10/20/2009	Hwang	704	257	
	17G	7,620,549	11/17/2009	Di Cristo *et al.*	704	257	
	17H	7,634,409	12/15/2009	Kennewick *et al.*	704	257	
	17I	7,640,006	12/29/2009	Portman *et al.*	455	412.1	
	17J	7,640,160	12/29/2009	Di Cristo *et al.*	704	257	
	17K	7,640,272	12/29/2009	Mahajan *et al.*	707	104.1	
	17L	7,676,365	03/09/2010	Hwang *et al.*	704	240	
	17M	7,676,369	03/09/2010	Fujimoto *et al.*	704	270	
	17N	7,684,977	03/23/2010	Morikawa	704	211	
	17O	7,693,720	04/06/2010	Kennewick *et al.*	704	275	
	17P	7,729,916	06/01/2010	Coffman *et al.*	704	270	
	17Q	7,729,918	06/01/2010	Walker *et al.*	704	275	
	17R	7,729,920	06/01/2010	Chaar *et al.*	704	275	
	17S	7,734,287	06/08/2010	Ying	455	423	
	17T	7,748,021	06/29/2010	Obradovich	725	105	
	17U	7,788,084	08/31/2010	Brun *et al.*	704	7	
	17V	7,801,731	09/21/2010	Odinak *et al.*	704	275	
	17W	7,809,570	10/05/2010	Kennewick *et al.*	704	257	

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	18A	7,818,176	10/19/2010	Freeman *et al.*	704	270	
	18B	7,831,426	11/09/2010	Bennett	704	252	
	18C	7,831,433	11/09/2010	Belvin *et al.*	704	275	
	18D	7,856,358	12/21/2010	Ho	704	270	
	18E	7,873,519	01/18/2011	Bennett	704	257	
	18F	7,873,523	01/18/2011	Potter *et al.*	704	275	
	18G	7,873,654	01/18/2011	Bernard	707	769	
	18H	7,881,936	02/01/2011	Longe *et al.*	704	257	
	18I	7,890,324	02/15/2011	Bangalore *et al.*	704	231	
	18J	7,894,849	02/22/2011	Kass *et al.*	455	550.1	
	18K	7,902,969	03/08/2011	Obradovich	340	439	
	18L	7,917,367	03/29/2011	Di Cristo *et al.*	704	270.1	
	18M	7,920,682	04/05/2011	Byrne *et al.*	379	88.18	
	18N	7,949,529	05/24/2011	Weider *et al.*	704	270	
	18O	7,949,537	05/24/2011	Walker *et al.*	704	275	
	18P	7,953,732	05/31/2011	Frank *et al.*	707	724	
	18Q	7,974,875	07/05/2011	Quilici *et al.*	705	14.4	
	18R	7,983,917	07/19/2011	Kennewick *et al.*	704	257	
	18S	7,984,287	07/19/2011	Gopalakrishnan *et al.*	713	100	
	18T	8,005,683	08/23/2011	Tessel *et al.*	704	275	
	18U	8,015,006	09/06/2011	Kennewick *et al.*	704	236	
	18V	8,060,367	11/15/2011	Keaveney	704	247	
	18W	8,069,046	11/29/2011	Kennewick *et al.*	704	257	

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	19A	8,073,681	12/06/2011	Baldwin *et al.*	704	9	
	19B	8,077,975	12/13/2011	Ma *et al.*	382	187	
	19C	8,082,153	12/20/2011	Coffman *et al.*	704	270	
	19D	8,086,463	12/27/2011	Ativanichayaphong *et al.*	704	275	
	19E	8,112,275	02/07/2012	Kennewick *et al.*	704	240	
	19F	8,140,327	03/20/2012	Kennewick *et al.*	704	226	
	19G	8,140,335	03/20/2012	Kennewick *et al.*	704	257	
	19H	8,145,489	03/27/2012	Freeman *et al.*	704	257	
	19I	8,150,694	04/03/2012	Kennewick *et al.*	704	257	
	19J	8,155,962	04/10/2012	Kennewick *et al.*	704	257	
	19K	8,170,867	05/01/2012	Germain	704	9	
	19L	8,195,468	06/05/2012	Weider *et al.*	704	275	
	19M	8,219,399	07/10/2012	Lutz *et al.*	704	270	
	19N	8,219,599	07/10/2012	Tunstall-Pedoe	707	955	
	19O	8,224,652	07/17/2012	Wang *et al.*	704	275	
	19P	8,255,224	08/28/2012	Singleton *et al.*	704	275	
	19Q	8,326,627	12/04/2012	Kennewick *et al.*	704	257	
	19R	8,326,634	12/04/2012	Di Cristo *et al.*	704	270.1	
	19S	8,326,637	12/04/2012	Baldwin *et al.*	704	275	
	19T	8,332,224	12/11/2012	Di Cristo *et al.*	704	257	
	19U	8,370,147	02/05/2013	Kennewick *et al.*	704	257	
	19V	8,447,607	05/21/2013	Weider *et al.*	704	250	
	19W	8,452,598	05/28/2013	Kennewick *et al.*	704	257	

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	20A	8,509,403	08/13/2013	Chiu *et al.*	379	114.13	
	20B	8,515,765	08/20/2013	Baldwin et al.	704	275	
	20C	8,527,274	09/03/2013	Freeman *et al.*	704	257	
	20D	8,589,161	11/19/2013	Kennewick *et al.*	704	252	
	20E	8,620,659	12/31/2013	Di Cristo et al.	704	257	
	20F	2001/0041980	11/15/2001	Howard *et al.*	704	270	
	20G	2001/0049601	12/06/2001	Kroeker *et al.*	704	254	
	20H	2001/0054087	12/20/2001	Flom *et al.*	709	218	
	20I	2002/0015500	02/07/2002	Belt *et al.*	381	66	
	20J	2002/0022927	02/21/2002	Lemelson *et al.*	701	301	
	20K	2002/0029261	03/07/2002	Shibata	709	219	
	20L	2002/0032752	03/14/2002	Gold *et al.*	709	218	
	20M	2002/0035501	03/21/2002	Handel *et al.*	705	10	
	20N	2002/0049535	04/25/2002	Rigo *et al.*	701	211	
	20O	2002/0049805	04/25/2002	Yamada *et al.*	709	202	
	20P	2002/0065568	05/30/2002	Silfvast *et al.*	700	94	
	20Q	2002/0067839	06/06/2002	Heinrich	381	110	
	20R	2002/0069059	06/06/2002	Smith	704	257	
	20S	2002/0069071	06/06/2002	Knockeart et al.	704	275	
	20T	2002/0082911	06/27/2002	Dunn *et al.*	705	14	
	20U	2002/0087326	07/04/2002	Lee *et al.*	704	270.1	
	20V	2002/0087525	07/04/2002	Abbott *et al.*	707	3	
	20W	2002/0107694	08/08/2002	Lerg	704	273	

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	21A	2002/0120609	08/29/2002	Lang *et al.*	707	1	
	21B	2002/0124050	09/05/2002	Middeljans	709	203	
	21C	2002/0133402	09/19/2002	Faber *et al.*	705	14	
	21D	2002/0138248	09/26/2002	Corston-Oliver *et al.*	704	1	
	21E	2002/0143532	10/03/2002	McLean *et al.*	704	235	
	21F	2002/0143535	10/03/2002	Kist *et al.*	704	251	
	21G	2002/0161646	10/31/2002	Gailey *et al.*	705	14	
	21H	2002/0173333	11/21/2002	Buchholz *et al.*	455	527	
	21I	2002/0173961	11/21/2002	Guerra	704	258	
	21J	2002/0184373	12/05/2002	Maes	709	228	
	21K	2002/0188602	12/12/2002	Stubler *et al.*	707	3	
	21L	2002/0198714	12/26/2002	Zhou	704	252	
	21M	2003/0014261	01/16/2003	Kageyama	704	275	
	21N	2003/0016835	01/23/2003	Elko *et al.*	381	92	
	21O	2003/0064709	04/03/2003	Gailey *et al.*	455	412	
	21P	2003/0065427	04/03/2003	Funk *et al.*	701	1	
	21Q	2003/0069734	04/10/2003	Everhart	704	275	
	21R	2003/0088421	05/08/2003	Maes *et al.*	704	270.1	
	21S	2003/0097249	05/22/2003	Walker *et al.*	704	1	
	21T	2003/0110037	06/12/2003	Walker *et al.*	704	257	
	21U	2003/0112267	06/19/2003	Belrose	345	728	
	21V	2003/0115062	06/19/2003	Walker *et al.*	704	258	
	21W	2003/0120493	06/26/2003	Gupta	704	270.1	

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	22A	2003/0135488	07/17/2003	Amir *et al.*	707	3	
	22B	2003/0144846	07/31/2003	Denenberg *et al.*	704	277	
	22C	2003/0158731	08/21/2003	Falcon *et al.*	704	231	
	22D	2003/0161448	08/28/2003	Parolkar *et al.*	379	88.17	
	22E	2003/0182132	09/25/2003	Niemoeller	704	275	
	22F	2003/0204492	10/30/2003	Wolf *et al.*	707	3	
	22G	2003/0206640	11/06/2003	Malvar *et al.*	381	93	
	22H	2003/0212550	11/13/2003	Ubale	704	215	
	22I	2003/0212558	11/13/2003	Matula	704	260	
	22J	2003/0212562	11/13/2003	Patel *et al.*	704	275	
	22K	2003/0225825	12/04/2003	Healey *et al.*	709	203	
	22L	2003/0236664	12/25/2003	Sharma	704	251	
	22M	2004/0006475	01/08/2004	Ehlen *et al.*	704	270.1	
	22N	2004/0010358	01/15/2004	Oesterling *et al.*	701	49	
	22O	2004/0025115	02/05/2004	Sienel *et al.*	715	513	
	22P	2004/0044516	03/04/2004	Kennewick *et al.*	704	5	
	22Q	2004/0098245	05/20/2004	Walker *et al.*	704	1	
	22R	2004/0117179	06/17/2004	Balasuriya	704	231	
	22S	2004/0117804	06/17/2004	Scahill *et al.*	719	320	
	22T	2004/0140989	07/22/2004	Papageorge	345	700	
	22U	2004/0158555	08/12/2004	Seedman *et al.*	707	3	
	22V	2004/0166832	08/26/2004	Portman *et al.*	455	412.1	
	22W	2004/0167771	08/26/2004	Duan *et al.*	704	10	

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	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED

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	090611-0422643	13/898,045
	Applicant(s)	
	Chris WEIDER *et al.*	
	Filing Date	Group Art Unit
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U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	23A	2004/0193408	09/30/2004	Hunt	704	209	
	23B	2004/0193420	09/30/2004	Kennewick *et al.*	704	257	
	23C	2004/0199375	10/07/2004	Ehsani *et al.*	704	4	
	23D	2004/0205671	10/14/2004	Sukehiro *et al.*	715	532	
	23E	2004/0243417	12/02/2004	Pitts, III *et al.*	704	276	
	23F	2005/0015256	01/20/2005	Kargman	704	272	
	23G	2005/0021334	01/27/2005	Iwahashi	704	240	
	23H	2005/0021470	01/27/2005	Martin *et al.*	705	51	
	23I	2005/0021826	01/27/2005	Kumar	709	232	
	23J	2005/0033574	02/10/2005	Kim *et al.*	704	251	
	23K	2005/0033582	02/10/2005	Gadd *et al.*	704	277	
	23L	2005/0043940	02/24/2005	Elder	704	9	
	23M	2005/0114116	05/26/2005	Fiedler	704	201	
	23N	2005/0125232	06/09/2005	Gadd	704	270.1	
	23O	2005/0137850	06/23/2005	Odell	704	4	
	23P	2005/0137877	06/23/2005	Oesterling *et al.*	704	275	
	23Q	2005/0143994	06/30/2005	Mori *et al.*	704	235	
	23R	2005/0216254	09/29/2005	Gupta *et al.*	704	9	
	23S	2005/0234727	10/20/2005	Chiu	704	270.1	
	23T	2005/0246174	11/03/2005	DeGolia	704	270	
	23U	2005/0283752	12/22/2005	Fruchter *et al.*	717	100	
	23V	2006/0041431	02/23/2006	Maes	704	270.1	
	23W	2006/0047509	03/02/2006	Ding *et al.*	704	231	

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	24A	2006/0206310	09/14/2006	Ravikumar *et al.*	704	9	
	24B	2006/0217133	09/28/2006	Christenson *et al.*	455	461	
	24C	2006/0285662	12/21/2006	Yin *et al.*	379	88.16	
	24D	2007/0033005	02/08/2007	Cristo *et al.*	704	9	
	24E	2007/0033020	02/08/2007	(Kelleher) Francois *et al.*	704	226	
	24F	2007/0038436	02/15/2007	Cristo *et al.*	704	9	
	24G	2007/0043868	02/22/2007	Kumar *et al.*	709	226	
	24H	2007/0050191	03/01/2007	Weider *et al.*	704	275	
	24I	2007/0055525	03/08/2007	Kennewick *et al.*	704	257	
	24J	2007/0061067	03/15/2007	Zeinstra *et al.*	701	200	
	24K	2007/0061735	03/15/2007	Hoffberg *et al.*	715	744	
	24L	2007/0073544	03/29/2007	Millett *et al.*	704	277	
	24M	2007/0078708	04/05/2007	Yu *et al.*	705	14	
	24N	2007/0078709	04/05/2007	Rajaram	705	14	
	24O	2007/0118357	05/24/2007	Kasravi *et al.*	704	10	
	24P	2007/0135101	06/14/2007	Ramati *et al.*	455	414.1	
	24Q	2007/0146833	06/28/2007	Satomi *et al.*	358	537	
	24R	2007/0162296	07/12/2007	Altberg *et al.*	705	1	
	24S	2007/0179778	08/02/2007	Gong *et al.*	704	9	
	24T	2007/0186165	08/09/2007	Maislos *et al.*	715	728	
	24U	2007/0198267	08/23/2007	Jones *et al.*	704	257	
	24V	2007/0203736	08/30/2007	Ashton	705	1	
	24W	2007/0214182	09/13/2007	Rosenberg	707	104.1	

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U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	25A	2007/0250901	10/25/2007	McIntire *et al.*	725	146	
	25B	2007/0265850	11/15/2007	Kennewick *et al.*	704	257	
	25C	2007/0299824	12/27/2007	Pan *et al.*	707	3	
	25D	2008/0034032	02/07/2008	Healey *et al.*	709	203	
	25E	2008/0065386	03/13/2008	Cross *et al.*	704	270	
	25F	2008/0091406	04/17/2008	Baldwin *et al.*	704	4	
	25G	2008/0103761	05/01/2008	Printz *et al.*	704	9	
	25H	2008/0109285	05/08/2008	Reuther *et al.*	705	7	
	25I	2008/0115163	05/15/2008	Gilboa *et al.*	725	34	
	25J	2008/0133215	06/05/2008	Sarukkai	704	2	
	25K	2008/0140385	06/12/2008	Mahajan *et al.*	704	9	
	25L	2008/0147410	06/19/2008	Odinak	704	270.1	
	25M	2008/0177530	07/24/2008	Cross *et al.*	704	4	
	25N	2008/0189110	08/07/2008	Freeman *et al.*	704	251	
	25O	2008/0235023	09/25/2008	Kennewick *et al.*	704	257	
	25P	2008/0235027	09/25/2008	Cross	704	270.1	
	25Q	2008/0319751	12/25/2008	Kennewick *et al.*	704	257	
	25R	2009/0052635	02/26/2009	Jones *et al.*	379	88.02	
	25S	2009/0067599	03/12/2009	Agarwal *et al.*	379	114.21	
	25T	2009/0076827	03/19/2009	Bulitta *et al.*	704	275	
	25U	2009/0106029	04/23/2009	DeLine *et al.*	704	275	
	25V	2009/0117885	05/07/2009	Roth	455	414.3	
	25W	2009/0144271	06/04/2009	Richardson *et al.*	707	5	

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*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	26A	2009/0150156	06/11/2009	Kennewick *et al.*	704	257	
	26B	2009/0171664	07/02/2009	Kennewick *et al.*	704	257	
	26C	2009/0216540	08/27/2009	Tessel *et al.*	704	275	
	26D	2009/0271194	10/29/2009	Davis *et al.*	704	235	
	26E	2009/0273563	11/05/2009	Pryor	345	157	
	26F	2009/0276700	11/05/2009	Anderson *et al.*	715	700	
	26G	2009/0299745	12/03/2009	Kennewick *et al.*	704	257	
	26H	2009/0307031	12/10/2009	Winkler *et al.*	705	7	
	26I	2009/0313026	12/17/2009	Coffman *et al.*	704	275	
	26J	2010/0023320	01/28/2010	Di Cristo *et al.*	704	9	
	26K	2010/0029261	02/04/2010	Mikkelsen *et al.*	455	419	
	26L	2010/0049501	02/25/2010	Kennewick *et al.*	704	9	
	26M	2010/0049514	02/25/2010	Kennewick *et al.*	704	233	
	26N	2010/0057443	03/04/2010	Di Cristo *et al.*	704	9	
	26O	2010/0063880	03/11/2010	Atsmon *et al.*	705	14.53	
	26P	2010/0036967	02/11/2010	Caine *et al.*	709	236	
	26Q	2010/0185512	07/22/2010	Borger *et al.*	705	14.49	
	26R	2010/0145700	06/10/2010	Kennewick *et al.*	704	257	
	26S	2010/0204986	08/12/2010	Kennewick *et al.*	704	226	
	26T	2010/0204994	08/12/2010	Kennewick *et al.*	704	257	
	26U	2010/0217604	08/26/2010	Baldwin *et al.*	704	275	
	26V	2010/0286985	11/11/2010	Kennewick *et al.*	704	257	
	26W	2010/0299142	11/25/2010	Freeman *et al.*	704	9	

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	27A	2010/0312566	12/09/2010	Odinak *et al.*	704	275	
	27B	2011/0112827	05/12/2011	Kennewick *et al.*	704	9	
	27C	2011/0112921	05/12/2011	Kennewick *et al.*	705	26.1	
	27D	2011/0131036	06/02/2011	Di Cristo *et al.*	704	9	
	27E	2011/0131045	06/02/2011	Cristo *et al.*	704	249	
	27F	2011/0231182	09/22/2011	Weider *et al.*	704	9	
	27G	2011/0231188	09/22/2011	Kennewick *et al.*	704	236	
	27H	2012/0022857	01/26/2012	Baldwin *et al.*	704	9	
	27I	2012/0101809	04/26/2012	Kennewick *et al.*	704	9	
	27J	2012/0101810	04/26/2012	Kennewick *et al.*	704	9	
	27K	2012/0109753	05/03/2012	Kennewick *et al.*	705	14.58	
	27L	2012/0150636	06/14/2012	Freeman *et al.*	705	14.49	
	27M	2012/0278073	11/01/2012	Weider et al.	704	235	
	27N	2013/0054228	02/28/2013	Baldwin *et al.*	704	9	
	27O	2013/0211710	08/15/2013	Kennewick *et al.*	701	419	
	27P	2013/0297293	11/07/2013	Di Cristo *et al.*	704	9	
	27Q	2013/0304473	11/14/2013	Baldwin *et al.*	704	257	
	27R	2013/0339022	12/19/2013	Baldwin *et al.*	704	257	
	27S	2014/0012577	01/09/2014	Freeman *et al.*	704	249	
	27T	2014/0108013	04/17/2014	Di Cristo *et al.*	704	254	

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Bibliographic data: JP2008139928 (A) — 2008-06-19

AFFINITY APPARATUS USING BLOG OR QUERY CLICK

No documents available for this priority number.

Inventor(s): FUJITA SUMIO ± (FUJITA SUMIO)

Applicant(s): YAHOO JAPAN CORP ± (YAHOO JAPAN CORP)

Classification: **- international:** ***G06F17/30; G06F19/00; G06Q30/02; G06Q30/06; G06Q50/00***

- cooperative:

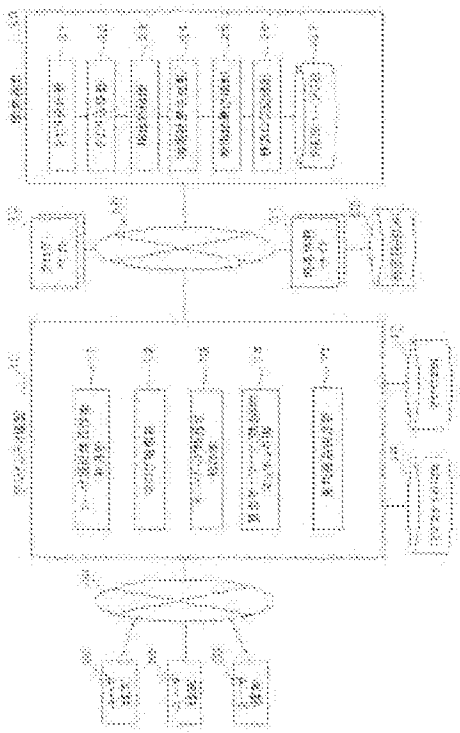
Application number: JP20060322875 20061130

Priority number(s): JP20060322875 20061130

Also published as: JP4833043 (B2)

Abstract of JP2008139928 (A)

PROBLEM TO BE SOLVED: To provide a new apparatus that can extract and recommend related articles of merchandise from sites responsive to general affairs and trends by effectively using resources existing on the Internet. ; SOLUTION: The apparatus comprises a user-selected merchandise information acquisition part for acquiring merchandise information selected by a user in an auction bidding or merchandise search on the Internet and acquiring a merchandise keyword from the merchandise information, a blog search part for searching blog sites based on the merchandise keyword, a keyword merchandise name extraction part for extracting merchandise name keywords frequent in pages from the content of blogs obtained by the blog search part, an extracted keyword/merchandise DB matching part for comparing the extracted keywords with sales merchandise information stored in a merchandise description database to compute affinity, and a recommended merchandise decision part for deciding merchandise keywords whose affinity is higher than a predetermined value as recommended merchandise to the user. ; COPYRIGHT: (C)2008,JPO&INPIT



(19)日本国特許庁(JP)　(12)公開特許公報(A)　(11)特許出願公開番号
特開2008-139928
(P2008-139928A)
(43)公開日　平成20年6月19日(2008.6.19)

(51)Int.Cl.		F I		テーマコード（参考）
G06Q 30/00	(2006.01)	G06F 17/60	326	5B075
G06F 19/00	(2006.01)	G06F 19/00	130	
G06F 17/30	(2006.01)	G06F 17/30	170Z	
		G06F 17/30	340Z	

審査請求 未請求　請求項の数 5　OL　（全 14 頁）

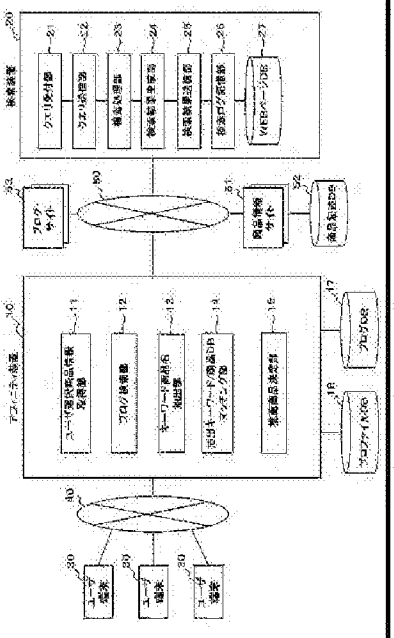
(21)出願番号　特願2006-322875 (P2006-322875)
(22)出願日　平成18年11月30日 (2006.11.30)

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Fターム(参考)　5B075 ND20　NK02　PP22　PR06　QM08

(54)【発明の名称】ブログ又はクエリ・クリックを利用したアフィニティ装置

(57)【要約】
【課題】インターネット上にすでに実現されている資源を有効に利用し、世の中の情勢や流行にも敏感に反応するようなサイトから関連商品を抽出し、推薦できる新たな装置等を提供すること。
【解決手段】インターネット上でのオークションの応札若しくは商品検索において、ユーザが選択した商品情報を取得して該商品情報から商品キーワードを取得するユーザ選択商品情報取得部と、商品キーワードに基づいて、ブログ・サイトに対して検索を行うブログ検索部と、ブログ検索部によって得られたブログのコンテンツから、そのページ内で頻出する商品名のキーワードを抽出するキーワード商品名抽出部と、抽出したキーワードと商品記述データベースに格納された販売用商品情報とを比較し、適合度を求める抽出キーワード／商品ＤＢマッチング部と、適合度が所定の値よりも高い商品キーワードを前記ユーザに対する推薦商品として決定する推薦商品決定部とを備える装置。
【選択図】図１



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Page 00231

【特許請求の範囲】
【請求項1】
ユーザが求める商品に関連する他の商品の情報を抽出する方法であって、
ユーザ端末から、インターネット上でのオークションの応札若しくは商品検索において、前記ユーザが選択した商品情報を取得して前記ユーザが求める商品の第１の商品情報を取得するステップと、
前記オークションのサイト若しくは前記商品検索のサイトとは異なる別のサイトから前記第１の商品情報に関連するページを取得し、該関連するページの特徴を解析するステップと、
前記解析によって得られたページ内で頻出する第２の商品情報を抽出するステップと、
前記第２の商品情報と商品記述データベースに格納されている販売用商品情報との適合度を求めるステップと、
前記適合度が所定の値よりも高い前記第２の商品情報を、前記第１の商品情報に関連する推薦商品として決定するステップと、
を含む方法。
【請求項2】
ユーザが求める商品に関連する他の商品の情報を抽出する装置であって、
ユーザ端末から、インターネット上でのオークションの応札若しくは商品検索において、前記ユーザが選択した商品情報を取得して該商品情報から商品キーワードを取得するユーザ選択商品情報取得部と、
前記商品キーワードに基づいて、ネットワーク上のブログ・サイトに対して検索を行うブログ検索部と、
前記ブログ検索部によって得られたブログのコンテンツから、そのコンテンツのページ内で頻出する商品名のキーワードを抽出するキーワード商品名抽出部と、
前記抽出したキーワードと商品記述データベースに格納されている販売用商品情報とを比較し、その適合度を求める抽出キーワード／商品ＤＢマッチング部と、
前記適合度が所定の値よりも高い商品キーワードを前記ユーザに対する推薦商品として決定する推薦商品決定部と、
を備える装置。
【請求項3】
ユーザが求める商品に関連する他の商品の情報を抽出する装置であって、
ユーザ端末から、インターネット上でのオークションの応札若しくは商品検索において、前記ユーザが選択した商品情報を取得して該商品情報から商品キーワードを取得するユーザ選択商品情報取得部と、
前記ユーザのクリックした商品情報ページと同じページをクリックした他のユーザがクリックした前記商品情報ページとは別のページを取得するクリックページ取得部と、
前記別のページで頻出する他商品のキーワードを抽出する他商品キーワード抽出部と、
前記他商品のキーワードと商品記述データベースに格納されている販売用商品情報との適合度を求める商品ＤＢ／クリックページマッチング部と、
前記適合度が所定の値よりも高い商品情報をユーザが求めた商品と関連する推薦商品として決定する推薦商品決定部と、
を備える装置。
【請求項4】
前記頻出する商品のキーワードは、ＴＦ＊ＩＤＦ値を計算することによって求める、請求項２又は３に記載の装置。
【請求項5】
前記クリックページ取得部は、前記ユーザのクリックした商品情報ページに替えて、前記ユーザの参照した参照ニュースページ若しくは参照記事ページと同じページをクリックした他のユーザがクリックした前記商品情報ページとは別のページを抽出する、請求項３

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に記載の装置。
【発明の詳細な説明】
【技術分野】
【0001】
本発明は、ブログ又はクエリ・クリックを利用したアフィニティ装置に関する。更に詳しくは、インターネット上のブログ・サイトやユーザが検索したクリック履歴から、関連する商品の情報を抽出するための装置、方法に関する。
【背景技術】
【0002】
インターネットを利用した各種の検索サービスやオンライン・ショッピングが広く普及するにつれ、ユーザが求める商品のみならず、その商品に関連する商品やサービス等も合わせて、ユーザに提示することが広く行われている。例えば、ユーザが、求める書籍をインターネット・ショッピングサイトで検索すると、ショッピングサイトのシステムは、その書籍の情報のみならず、その同じ書籍を購入した別のユーザを検出し、その別のユーザが購入した書籍を同時に表示させて、関連する書籍の販売に結び付けようとする。
【0003】
また、例えば、特許文献１には、顧客の購買履歴データを取得し、この購買履歴データから、商品の活性度と各商品の購買頻度から各商品の推薦度を求めて、顧客が商品を購入する際に、当該商品と時系列的な順序関係のある商品で推薦度の高い商品を顧客に推薦するような商品推薦装置等が開示されている。
【特許文献1】特開２００２－２７９２７９号公報
【発明の開示】
【発明が解決しようとする課題】
【0004】
上記の書籍のショッピングサイトの例では、他のユーザの書籍購入履歴を利用して、他の商品を推薦するものであるが、書籍と関係ないカテゴリーの中から関連する商品を推薦することはできない。書籍以外にも同様なサービスを提供するサイトもあるが、自サイト外が扱う商品以外の商品情報を推薦することはできない。
【0005】
また、特許文献１に記載の方法では、ユーザ（顧客）の購買履歴を時系列に多数蓄積し、そこから関連する商品を抽出して推薦する。しかしながら、このような方法では、購買履歴を持たないユーザや、新商品等発売されてまもない商品についてはデータの蓄積が少なく、必ずしも有効でない場合がある。また、最近のように膨大な商品数が存在し、かつ流行や移り変わりの激しい時代では、ユーザの購買履歴を蓄積するだけでは推薦できる商品の幅も狭くなりがちである。ユーザの商品購買意欲は、過去のユーザの履歴だけでは判断できないものであるし、世の中の情勢や他のユーザの動向によっても影響を受けるものだからである。
【0006】
本発明は、上記のような課題を鑑み、インターネット上にすでに実現されている様々なデータベース等の資源を有効に利用し、世の中の情勢や流行にも敏感に反応するようなサイトから関連商品を抽出し、推薦できるような新たな装置等を提供することを目的とする。
【課題を解決するための手段】
【0007】
本発明では、以下のような解決手段を提供する。
【0008】
（１）　ユーザ端末から、インターネット上でのオークションの応札若しくは商品検索において、前記ユーザが選択した商品情報を取得して前記ユーザが求める商品の第１の商品情報を取得するステップと、
前記オークションのサイト若しくは前記商品検索のサイトとは異なる別のサイトから前

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記第１の商品情報に関連するページを取得し、該関連するページの特徴を解析するステップと、
前記解析によって得られたページ内で頻出する第２の商品情報を抽出するステップと、
前記第２の商品情報と商品記述データベースに格納されている販売用商品情報との適合度を求めるステップと、
前記適合度が所定の値よりも高い前記第２の商品情報を、前記第１の商品情報に関連する推薦商品として決定するステップと、
を含む方法。

【0009】

この方法では、まず、ユーザがインターネット上のオークションや商品検索を行った際にユーザが選択した商品の商品名やキーワードを第１の商品情報として取得する。次にオークションサイトや商品検索に用いたサイトとは別のサイト（例えばブログ・サイトや同じ商品を検索したユーザが閲覧した別のサイト）から、第１の商品情報に関連するページを取得し、この関連するページに対して特徴を解析する。そして、その解析によって得られたページ内で頻出する第２の商品情報（商品名、キーワード）を求める。そして第２の商品情報と商品記述データベースに格納されている販売用商品情報との適合度を求め、適合度の高い第２の商品情報をユーザに対する推薦商品として決定する。

【0010】

このようにすることで、ユーザが直接参照したページとは異なる他のページの情報を利用して、ユーザに対する推薦商品の幅を広くすることができる。すなわち、間接情報を利用して関連商品を抽出することができる。

【0011】

（２）　ユーザが求める商品に関連する他の商品の情報を抽出する装置であって、
ユーザ端末から、インターネット上でのオークションの応札若しくは商品検索において、前記ユーザが選択した商品情報を取得して該商品情報から商品キーワードを取得するユーザ選択商品情報取得部と、
前記商品キーワードに基づいて、ネットワーク上のブログ・サイトに対して検索を行うブログ検索部と、
前記ブログ検索部によって得られたブログのコンテンツから、そのコンテンツのページ内で頻出する商品名のキーワードを抽出するキーワード商品名抽出部と、
前記抽出したキーワードと商品記述データベースに格納されている販売用商品情報とを比較し、その適合度を求める抽出キーワード／商品ＤＢマッチング部と、
前記適合度が所定の値よりも高い商品キーワードを前記ユーザに対する推薦商品として決定する推薦商品決定部と、
を備える装置。

【0012】

このような構成によれば、本装置は、ユーザ端末から、インターネット上でのオークションの応札若しくは商品検索において、前記ユーザが選択した商品情報を取得して該商品情報から商品キーワードを取得する。次に、商品キーワードを用いて、ネットワーク上のブログ・サイトに対して検索を行う。得られたブログのコンテンツから、そのコンテンツページで頻出する商品名のキーワードを抽出する。そして、抽出したキーワードと商品記述データベース（典型的にはその商品のメーカや販売者から提供される）に格納されている販売用商品情報とを比較し、その適合度を求め、適合度が所定の値よりも高い商品キーワードを前記ユーザに対する推薦商品として決定する。

【0013】

このようにすることで、インターネット上に多数存在する広告効果の高いブログから得られる各種の情報（例えば、カリスマブログに記載された口コミ情報等）を利用して、推薦商品を抽出することができる。

【0014】

（３）　ユーザが求める商品に関連する他の商品の情報を抽出する装置であって、

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ユーザ端末から、インターネット上でのオークションの応札若しくは商品検索において、前記ユーザが選択した商品情報を取得して該商品情報から商品キーワードを取得するユーザ選択商品情報取得部と、
前記ユーザのクリックした商品情報ページと同じページをクリックした他のユーザがクリックした前記商品情報ページとは別のページを取得するクリックページ取得部と、
前記別のページで頻出する他商品のキーワードを抽出する他商品キーワード抽出部と、
前記他商品のキーワードと商品記述データベースに格納されている販売用商品情報との適合度を求める商品ＤＢ／クリックページマッチング部と、
前記適合度が所定の値よりも高い商品情報をユーザが求めた商品と関連する推薦商品として決定する推薦商品決定部と、
を備える装置。
【0015】
このような構成によれば、本装置は、ユーザ端末から、インターネット上でのオークションの応札若しくは商品検索において、ユーザが選択した商品情報を取得して該商品情報から商品キーワードを取得する。次に、ユーザのクリックした商品情報ページと同じページをクリックした他のユーザがクリックした前記商品情報ページとは別のページを抽出する。そして、この別のページで頻出する他商品のキーワードを抽出し、商品記述データベースに格納されている販売用商品情報と前記別のページとの適合度を求め、適合度が所定の値よりも高い商品情報をユーザが求めた商品と関連する推薦商品として決定する。
【0016】
このようにすることで、ユーザがオークション応札や商品検索の際にクリックしたページと同じページをクリックした別のユーザが、クリックした別のページにある情報を利用して、推薦商品を抽出することができる。
【0017】
（４）　前記頻出する商品のキーワードは、ＴＦ＊ＩＤＦ値を計算することによって求める。（２）又は（３）に記載の装置。
【0018】
このような構成によれば、取得したブログページ又は他のユーザがクリックしたページから頻出する語を抽出するためにＴＦ＊ＩＤＦ値を求める。ＴＦ＊ＩＤＦ値は、特定のページに偏って頻出する単語を抽出する広く知られた方法であるのでブログページやクリックしたページの特徴を抽出するのに有用である。
【0019】
（５）　前記クリックページ取得部は、前記ユーザのクリックした商品情報ページに替えて、前記ユーザの参照した参照ニュースページ若しくは参照記事ページと同じページをクリックした他のユーザがクリックした前記商品情報ページとは別のページを抽出する、（３）に記載の装置。
【0020】
このような構成によれば、本装置は、ユーザがクリックした商品情報ページにかわりに参照ニュースページ履歴や参照記事等個人の興味関心に基づく行動の履歴を用いることができる。このようにすることで、同じ興味のページをクリックしたユーザを類似ユーザととらえ、これらのユーザがクリックした他のページからも情報を抽出することができる。
【発明の効果】
【0021】
本発明によれば、インターネット上に実現されている資源を有効に利用し、特に検索するユーザとはまったく別の無関係な人間が作成した情報や履歴を利用して、関連する商品を抽出し推薦できるような装置等を提供することができる。
【発明を実施するための最良の形態】
【0022】
以下、本発明の実施形態について図を参照しながら説明する。
【0023】

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［実施形態１］

図１は、本発明の実施形態１に係るアフィニティ装置１０及び関連するシステムのブロック図である。本発明のアフィニティ装置１０は、商品に関連する他の商品情報を、インターネット上の様々な情報を利用して、ユーザに提供するための装置である。アフィニティ装置１０は、インターネット４０，５０を介して利用者の端末であるユーザ端末３０、インターネット上のＷｅｂページを検索する検索エンジンを備えた検索装置２０、商品の詳細情報を提供する各種商品情報サイト５１（典型的には商品記述ＤＢ５２を備える）、及び各種ブログ・サイト５３と接続される。ここで、ユーザ（利用者）は、ユーザ端末３０を用いて、購入を検討している商品をなんらかの手段で表示しようとする。例えば、商品検索結果をクリックして、商品情報を表示させたり、オークションサイトの入札画面から目的の商品情報を表示させたりする。

【0024】

アフィニティ装置１０は、ユーザ選択商品情報取得部１１、ブログ検索部１２、キーワード商品名抽出部１３、抽出キーワード／商品ＤＢマッチング部１４、推薦商品決定部１５を備えている。また、ユーザの履歴や各種個人情報を格納するプロファイルＤＢ１６、及びブログ専用の検索に用いるブログＤＢ１７を備える。ただし、プロファイルＤＢ１６とブログＤＢ１７については、それらを装置内部に備えていてもよいが、ネットワークに接続する外部装置に備えるようにしても。各部の働きについては次の図２で説明する。

【0025】

検索装置２０は、アフィニティ装置１０と通信可能に接続され、典型的には、クエリ受付部２１、クエリ送信部２２、検索処理部２３、検索結果生成部２４、検索結果送信部２５、検索ログ記憶部２６を備える。ここで、クエリとは、ユーザ又は他の装置（ここではアフィニティ装置１０）からの照会を受け、その結果を返答することをいう。検索処理部２３は、クエリ受付部２１から入力された検索キーワードや検索条件を用いて、実際の検索処理を行うもので、ここでは公知の検索技術が用いられてよい。検索結果生成部２４と検索結果送信部２５は、クエリの要求に合わせて、検索結果を加工したり、ユーザが見やすいように表示画面を生成したり、その結果を要求元に送信するものである。また、ＷＥＢページＤＢ２７は、検索のための情報を格納したデータベースであり、検索装置２０となんらかの形で接続されていれば、このデータベースは、検索装置２０の内部にあっても外部にあってもよい。なお、アフィニティ装置１０、検索装置２０において、上記の構成はほんの一例であり、他の様々なバリエーションが考えられることはいうまでもない。

【0026】

図２は、本発明の実施形態１に係るアフィニティ装置１０が行う処理フローを示す図である。まず、ステップＳ１において、ユーザ選択商品情報取得部１１は、Ｙａｈｏｏ！オークション等のインターネット上の各種オークションサイトや、Ｙａｈｏｏ！商品検索等の各種商品情報検索によって、購入したい商品情報取得する。例えば、オークションにおいては、その入札しようとする画面情報から、インターネット・ショッピングでは商品購入画面情報から、商品名やキーワードを取得する。購入したい商品名やキーワードを取得する方法は、本発明においては主眼でなく任意の方法を用いてよい。

【0027】

次に、ステップＳ２において、本実施形態１の中心的な役割をになうブログ検索部１２が、上記で得た商品名等を用いてインターネット上に多数存在するブログ・サイト５３を検索する。ブログとは、一般的には、インターネット上の様々なユーザが作成する日記風のホームページとされているが、今日では、商品の広告手段として注目を浴びている。例えば、広告サービス会社は、ブログの作成者（ブロガ）に対価を支払い、自分のブログに顧客企業の商品を使った経験等を載せ、それとなく宣伝してもらうようにしている。カリスマブロガと呼ばれる人間が作成したブログ・サイトには毎日数万件の訪問者があることも珍しくないからである。これは、Ｖｅｒｖａｌ　Ｍａｒｋｅｔｉｎｇとも呼ばれ、口コミを利用する新たなＰＲ手法である。口コミは、利用者の生の声やブームを反映するものとして広告効果が高いとされており、インターネット上のブログは、このような口コミ情

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報を掲載する手段として非常に有用である。本発明では、ブログを、関連商品情報を得るための手段として用いている。図１のブログＤＢ１７は、このようなブログ・サイトへのリンク等を多数格納したブログ専用のデータベースである。このデータベースを利用して、ブログ検索部１２は、効率的にユーザが購入したい商品名やキーワードが掲載されたブログページを集めることができる。

【0028】

次に、ステップＳ３において、キーワード商品名抽出部１３が、集められたブログページを解析し、ブログ記事、コメントからキーワードとなる商品名を抽出する。このキーワード商品名は、商品そのものの正式名称だけでなく、略称や巷でよく使われる愛称であってもよい。このようなキーワード商品名の抽出にはブログは最適である。キーワード商品名は、特定のページに偏って頻出する単語を抽出する。具体的には、単語毎にＴＦ＊ＩＤＦ（Ｔｅｒｍ　Ｆｒｅｑｕｅｎｃｙ＊Ｉｎｖｅｒｓｅ　Ｔｅｒｍ　Ｆｒｅｑｕｅｎｃｙ）値を計算することによって求めることができる。

【0029】

次に、ステップＳ４において、抽出キーワード／商品ＤＢマッチング部１４が、抽出キーワード等と商品ＤＢから取得した商品情報のマッチング（比較）を行う。ここでのマッチングには、抽出キーワード等と商品記述との適合関係を求めて判定される。ここで、適合度の計算には公知の技術を用いてよい（例えば、特公２００３－１６７９２０公報参照）。

【0030】

最後に、ステップＳ５において、推薦商品決定部１５が、関連する商品の中から適合度の高いものを推薦商品として決定する。以上のステップを次の図３を用いて更に具体的に説明する。

【0031】

図３は、本発明の実施形態１におけるプロファイルＤＢ１６に格納されるテーブルの例を示す図である。このテーブルにはユーザ毎のプロファイルが格納される。ここでは、まず、ユーザＩＤ「ＡＡＡ」のユーザが、オークション応札や商品検索によって、購入を考慮している商品のページ等から得られた語「ＫＫＫカメラ」が、商品キーワードとして、このテーブルに格納される。この商品キーワードに基づいて、ブログ検索部１２が、このキーワードを含んだブログページのＵＲＬを格納する。このときのキーワードは、「ＫＫＫカメラ」だけでなく、その類義語も用いてもよい。例えば、「ＫＫＫのカメラ」、「カメラＫＫＫ」等である。

【0032】

次に、キーワード商品名抽出部１３が、集められたブログページの内容を解析し、そのＵＲＬ毎に、ＴＦ＊ＩＤＦ法等を用いて、特定のページに偏って頻出する単語を、「キーワード・商品名」として抽出する。ここでは、「ＡＡＹレンズ」、「ＱＱＱプリンタ」、「ＭＭＭ双眼鏡」が抽出されたとする。

【0033】

抽出キーワード／商品ＤＢマッチング部１４は、抽出されたキーワード・商品名を商品記述ＤＢに格納された正式商品名と比較し、適合度の高い正式商品名を抽出する。ここでは、「ＭＭＭ双眼鏡」は、そのまま商品ＤＢに商品名として記述されているので、適合度１００として抽出されている。いっぽう、「ＡＡＡレンズ」や「ＺＺＺプリンタ」は、「キーワード・商品名」との適合度はやや低く、それぞれ、８６．０，５４．０となっている。

【0034】

図４は、オークション入札画面における関連商品情報の表示例を示す図である。この画面表示において、左側の領域と右上の領域は、通常のオークションの入札画面である。この画面を表示したユーザは、出品者「ｋａｎａさん」が出品した商品である「ＫＫＫカメラ」に入札しようかと思慮している。画面右下の領域（符号６０で示す）が、アフィニティ装置１０によって追加された関連商品情報である。この領域に、ブログの情報から他に

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推薦する商品として、「この商品を論じている人は、こういう商品についても論じています」と記載され、「ＭＭＭ双眼鏡」、「ＡＡＡレンズ」、「ＺＺＺプリンタ」が、適合度の高い順にリストされている。ここでは図示していないが、人気マブログ名を情報元として表示するようにしてもよい。ユーザが、このブログから得た情報を元にした関連商品情報を参照することにより、「ＫＫＫカメラ」だけでなく、「ＭＭＭ双眼鏡」等に誘導されれば、「ＭＭＭカメラ」の広告主にとって有用である。このようにブログを用いた関連商品の表示は従来になく、口コミによる広告効果をねらった関連商品の新しい広告手段であるといえる。

【0035】

［実施形態２］

図５は、本発明の実施形態２に係るアフィニティ装置１０ａ及び関連するシステムのブロック図である。本実施形態では、アフィニティ装置１０ａは、インターネット４０，５０を介して利用者の端末であるユーザ端末３０、インターネット上を検索する検索エンジン等を備えた検索装置２０、及び、商品の詳細情報を提供する各種商品情報サイト５１（商品記述ＤＢ５２を備える）と接続される。このようなシステム構成は、図１の場合と同様であるが、図１との相異は、ブログ検索部１２が、クリックページ取得部１２ａに置き換わったこと、ブログ・サイト５３とブログＤＢ１７が存在しない代わりにユーザクリック履歴ＤＢ１７ａや参照ニュースページ履歴ＤＢ１７ｂが存在する点である。

【0036】

アフィニティ装置１０ａは、ユーザ選択商品情報取得部１１ａ、クリックページ取得部１２ａ、他商品キーワード抽出部１３ａ、商品ＤＢ／クリックページマッチング部１４ａ、推薦商品決定部１５ａを備えている。また、プロファイルＤＢ１６、とユーザクリック履歴ＤＢ１７ａ等を、装置内部に備えていてもよいし、ネットワークに接続する外部に備えていてもよい。アフィニティ装置１０ａ各部の働きについては次の図６で説明する。

【0037】

検索装置２０は、アフィニティ装置１０ａと通信可能に接続され、典型的には、クエリ受付部２１、クエリ送信部２２、検索処理部２３、検索結果生成部２４、検索結果送信部２５、検索ログ記憶部２６を備える。検索装置２０の構成は、図１の場合とまったく同一なのでここでは説明を省略する。なお、アフィニティ装置１０ａ、検索装置２０において、上記の構成はほんの一例であり、他の様々な構成が考えられることはいうまでもない。

【0038】

図６は、本発明の実施形態２に係るアフィニティ装置１０ａが行う処理フローを示す図である。まず、ステップＳ１ａにおいて、ユーザ選択商品情報取得部１１ａが、Ｙａｈｏｏ！オークション等のインターネット上の各種オークションサイトや、各種商品情報検索によって、ユーザが購入しようとする商品の商品情報（商品名等）を取得する。例えば、オークションにおいてはその入札ページから、インターネット・ショッピングでは購入ページから、商品名等を取得する。ここで、購入したい商品名等を取得する方法は任意であってよい。

【0039】

ステップＳ１ａは、ユーザが商品を購入しようとする意志を持っている場合の処理であるが、一般の検索では、必ずしも商品の購入が目的ではない。この場合は、ステップＳ１ａの代わりにステップＳ１ｂにおいて、一般検索により得られたＷｅｂページを取得する。

【0040】

次に、ステップＳ２ａにおいて、クリックページ取得部１２ａが、オークションの入札ページのＵＲＬや商品検索された商品ページのＵＲＬ、又は、一般検索の結果でユーザがクリックしたページのＵＲＬを取得する。このＵＲＬは、プロファイルＤＢ１６ａにユーザプロファイルのクリック履歴として記憶される。更に、クリックページ取得部１２ａは、ユーザプロファイルに記憶されたクリック履歴の中から、同じＵＲＬをクリックしたユーザＩＤを見つけ出す。すべてのユーザのクリック履歴は、ユーザクリック履歴ＤＢ１７

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ａから取得できる。ユーザのクリック履歴を自動的に集める方法は公知の技術である。ただし、参照ニュースページ履歴を集めるためには、クリックページ取得部が、定期的にユーザ端末３０を探索する必要があろう。

【0041】

次に、ステップＳ３ａにおいて、他商品キーワード抽出部１３ａは、他のユーザのクリック履歴から、当該他のユーザがクリックしたＵＲＬのページ内容を解析し、その特徴（プロファイル）となる語を抽出する。この特徴となる語は、商品の正式名称や、略称や巷でよく使われる愛称であってもよい。具体的には、単語毎にＴＦ＊ＩＤＦ値を計算することによって求めることができる。

【0042】

次に、ステップＳ４ａにおいて、商品ＤＢ／クリックページマッチング部１４ａが、商品記述ＤＢに格納された商品情報と他のユーザがクリックしたページのプロファイル（特徴となる語）とのマッチング（比較）を行う。ここでのマッチングには、適合度を求めて判定される。ここで、適合度の計算には公知の技術を用いてよい。

【0043】

最後に、ステップＳ５ａにおいて、推薦商品決定部１５ａが、他のユーザがクリックしたページから抽出された特徴となる語の中から、元のユーザが検索した商品キーワードとの適合度の高いものを推薦商品として決定する。以上のステップを次の図７を用いて具体的に説明する。

【0044】

図７は、本発明の実施形態２におけるプロファイルＤＢ１６に格納されるテーブルの例を示す図である。ここでは、まず、ユーザＩＤ「ＡＡＡ」のユーザが商品検索した「ＫＫＫカメラ」が「商品キーワード」として、このテーブルに格納される。また、このとき、このユーザがクリックした「ＫＫＫカメラ」の商品情報ページのＵＲＬが、クリックページＵＲＬとしてこのテーブルに格納される。そして、この同じＵＲＬ（ｈｔｔｐ：／／ｗｗｗ．ｘｘｘ、ａａａ）をクリックした他のユーザのＩＤ（「ＣＣＣ」，「ＤＤＤ」，「ＥＥＥ」）を、「同じページをクリックした類似ユーザＩＤ」として、このテーブルに格納する。また、これらの他の類似ユーザがクリックした他のページのＵＲＬのリストを、このデーブルに更に格納する。

【0045】

次に、他商品キーワード抽出部１３ａが、集められた類似ユーザのクリックしたＵＲＬリストを用いて、そのＵＲＬ先の内容を検索し、ＴＦ＊ＩＤＦ法等を用いて、特定のページに偏って頻出する単語を推薦商品候補として抽出する。このとき、クリックしたページの代わりに、参照ニュースページ履歴、参照記事履歴等の個人の興味関心に基づく履歴を用いてもよい。ここでは、ユーザ「ＣＣＣ」がクリックした３つのＵＲＬから、「ＥＥＥ双眼鏡」が抽出され、推薦商品候補としてテーブルに格納されたことが示されている。同様に、ユーザＩＤ「ＤＤＤ」のクリックした履歴から、同じく「ＥＥＥ双眼鏡」が検出され、ユーザＩＤ「ＥＥＥ」のクリック履歴からは「ＦＦＦレンズ」が推薦商品候補として抽出されたことを示している。

【0046】

図８は、商品検索画面における関連商品情報の表示例を示す図である。この画面表示において、左側の領域と右上の領域は、通常の商品検索の結果、特定の商品を表示した画面である。このユーザは、現在商品「ＫＫＫカメラ」の画面を表示しているが、画面右下の領域が、アフィニティ装置１０ａによって追加された関連商品情報である。ここでは、符号６０ａで示す領域に，他のユーザの情報から推薦する商品として、「この商品を検索している人は、こういう商品についても検索しています」と表示され、ユーザ名と共に「ＥＥＥ双眼鏡」、「ＦＦＦレンズ」等のリンクが、表示される。ここで、ユーザ名は、特に表示されないようにしてもよい。この関連商品情報を参照することにより、「ＫＫＫカメラ」だけでなく、「ＥＥＥ双眼鏡」に誘導できれば、「ＥＥＥ双眼鏡」の広告主にとって有用である。このように同じ商品に興味を持った他のユーザのクリック履歴から関連商品

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情報を抽出する方法は、従来にない手法であり、他人の間接情報を利用したＭａｒｋｅｔｉｎｇといえる。

【0047】

［アフィニティ装置のハードウェア構成］

図９は、本発明の好適な実施形態１，２に係るアフィニティ装置１０，１０ａのハードウェア構成の一例を示す図である（以下、単にアフィニティ装置１０と呼ぶ）。

【0048】

アフィニティ装置１０は、制御部１０１を構成するＣＰＵ（Ｃｅｎｔｒａｌ　Ｐｒｏｃｅｓｓｉｎｇ　Ｕｎｉｔ）１０１０（マルチプロセッサ構成ではＣＰＵ１０１２等複数のＣＰＵが追加されてもよい）、バスライン１００５、通信Ｉ／Ｆ１０４０、メインメモリ１０５０、ＢＩＯＳ（Ｂａｓｉｃ　Ｉｎｐｕｔ　Ｏｕｔｐｕｔ　Ｓｙｓｔｅｍ）１０６０、ＵＳＢポート１０９０、Ｉ／Ｏコントローラ１０７０、並びにキーボード及びマウス１１００等の入力手段や表示装置１０２２を備える。

【0049】

Ｉ／Ｏコントローラ１０７０には、テープドライブ１０７２、ハードディスク１０７４、光ディスクドライブ１０７６、半導体メモリ１０７８、等の記憶手段を接続することができる。

【0050】

ＢＩＯＳ１０６０は、アフィニティ装置１０の起動時にＣＰＵ１０１０が実行するブートプログラムや、アフィニティ装置１０のハードウェアに依存するプログラム等を格納する。

【0051】

記憶部１０７を構成するハードディスク１０７４は、アフィニティ装置１０が機能するための各種プログラム及び本発明の機能を実行するプログラムを記憶しており、更に必要に応じて各種データベースを構成可能である。

【0052】

光ディスクドライブ１０７６としては、例えば、ＤＶＤ－ＲＯＭドライブ、ＣＤ－ＲＯＭドライブ、ＤＶＤ－ＲＡＭドライブ、ＣＤ－ＲＡＭドライブを使用することができる。この場合は各ドライブに対応した光ディスク１０７７を使用する。光ディスク１０７７から光ディスクドライブ１０７６によりプログラム又はデータを読み取り、Ｉ／Ｏコントローラ１０７０を介してメインメモリ１０５０又はハードディスク１０７４に提供することもできる。また、同様にテープドライブ１０７２に対応したテープメディア１０７１を主としてバックアップのために使用することもできる。

【0053】

アフィニティ装置１０に提供されるプログラムは、ハードディスク１０７４、光ディスク１０７７、又はメモリカード等の記録媒体に格納されて提供される。このプログラムは、Ｉ／Ｏコントローラ１０７０を介して、記録媒体から読み出され、又は通信Ｉ／Ｆ１０４０を介してダウンロードされることによって、アフィニティ装置１０にインストールされ実行されてもよい。

【0054】

前述のプログラムは、内部又は外部の記憶媒体に格納されてもよい。ここで、記憶部１０７を構成する記憶媒体としては、ハードディスク１０７４、光ディスク１０７７、又はメモリカードの他に、ＭＤ等の光磁気記録媒体、テープ媒体を用いることができる。また、専用通信回線やインターネットに接続されたサーバシステムに設けたハードディスク１０７４又は光ディスクライブラリ等の記憶装置を記録媒体として使用し、通信回線を介してプログラムをアフィニティ装置１０に提供してもよい。

【0055】

ここで、表示装置１０２２は、ユーザにデータの入力を受け付ける画面を表示したり、アフィニティ装置１０による演算処理結果の画面を表示したりするものであり、ブラウン管表示装置（ＣＲＴ）、液晶表示装置（ＬＣＤ）等のディスプレイ装置を含む。

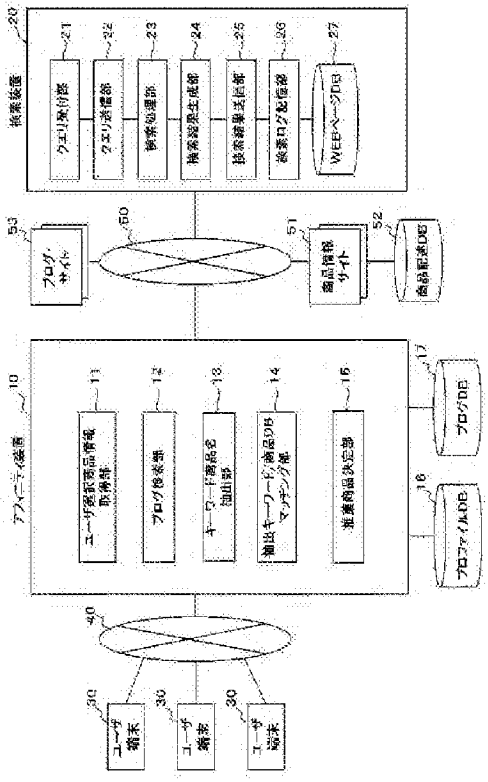
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【0056】
ここで、入力手段は、ユーザによる入力の受付を行うものであり、キーボード及びマウス１１００等により構成してよい。
【0057】
また、通信Ｉ／Ｆ１０４０は、アフィニティ装置１０を専用ネットワーク又は公共ネットワークを介して端末と接続できるようにするためのネットワーク・アダプタである。通信Ｉ／Ｆ１０４０は、モデム、ケーブル・モデム及びイーサネット（登録商標）・アダプタを含んでよい。
【0058】
以上の例は、アフィニティ装置１０について主に説明したが、コンピュータに、プログラムをインストールして、そのコンピュータをサーバ装置として動作させることにより上記で説明した機能を実現することもできる。したがって、本発明において一実施形態として説明したサーバにより実現される機能は、上述の方法を当該コンピュータにより実行することにより、或いは、上述のプログラムを当該コンピュータに導入して実行することによっても実現可能である。
【0059】
以上、本発明の実施形態について説明したが、本発明は上述した実施形態に限るものではない。また、本発明の実施形態に記載された効果は、本発明から生じる最も好適な効果を列挙したに過ぎず、本発明による効果は、本発明の実施例に記載されたものに限定されるものではない。
【図面の簡単な説明】
【0060】
【図1】本発明の実施形態１に係るアフィニティ装置１０及び関連するシステムのブロック図である。
【図2】本発明の実施形態１に係るアフィニティ装置１０が行う処理フローを示す図である。
【図3】本発明の実施形態１におけるプロファイルＤＢ１６に格納されるテーブルの例を示す図である。
【図4】オークション入札画面における関連商品情報の表示例を示す図である。
【図5】本発明の実施形態２に係るアフィニティ装置１０ａ及び関連するシステムのブロック図である。
【図6】本発明の実施形態２に係るアフィニティ装置１０ａが行う処理フローを示す図である。
【図7】実施形態２におけるプロファイルＤＢ１６に格納されるテーブルの例を示す図である。
【図8】図８は、商品検索画面における関連商品情報の表示例を示す図である。
【図9】本発明の好適な実施形態１，２に係るアフィニティ装置１０，１０ａのハードウェア構成の一例を示す図である。
【符号の説明】
【0061】
１０，１０ａ　アフィニティ装置
１１，１１ａ　ユーザ選択商品情報取得部
１２　ブログ検索部
１２ａ　クリックページ取得部
１３　キーワード商品名抽出部
１３ａ　他商品キーワード抽出部
１４　抽出キーワード／商品ＤＢマッチング部
１４ａ　商品ＤＢ／クリックページマッチング部
１５，１５ａ　推薦商品決定部
１６，１６ａ　プロファイルＤＢ

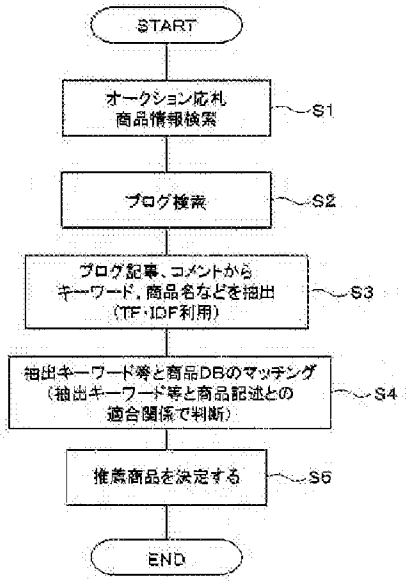
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１７　ブログＤＢ
１７ａ　ユーザクリック履歴ＤＢ
１７ｂ　参照ニュースページ履歴ＤＢ
２０　検索装置
２１　クエリ受付部
２２　クエリ送信部
２３　検索処理部
２４　検索結果生成部
２５　検索結果送信部
２６　検索ログ記憶部
２７　ＷＥＢページＤＢ
３０　ユーザ端末
４０，５０　インターネット
５１　商品情報サイト
５２　商品記述ＤＢ
５３　ブログ・サイト
６０，６０ａ　推薦商品情報

【図1】



【図2】

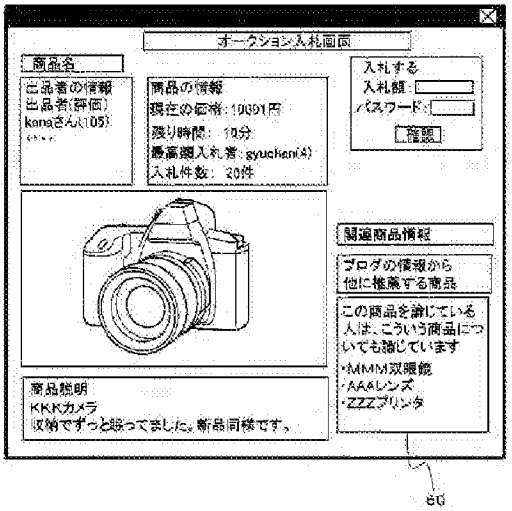


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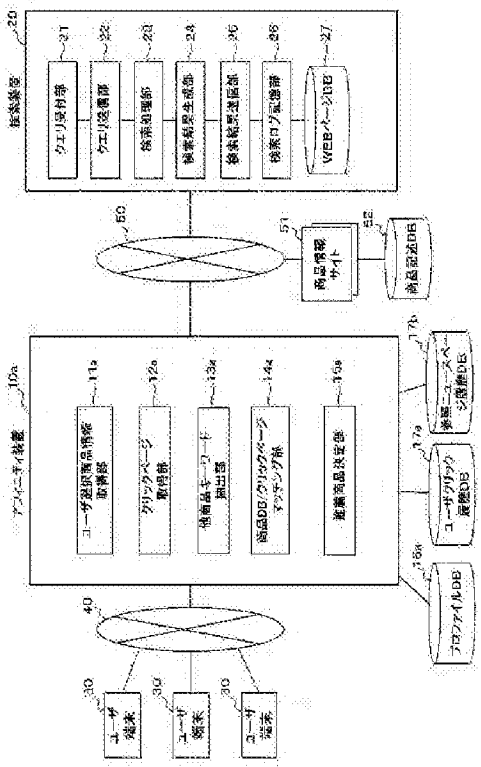
【図3】

ユーザID	商品キーワード	ブログページURL	キーワード・商品名	推奨振興商品	推奨商品
AAA	KKKカメラ	http://www.xxx.aaa http://www.xxx.bbb http://www.xxx.zzz http://www.xxx.ddd	「AAAレンズ」 「QQQプリンタ」 「MMM双眼鏡」	MMM双眼鏡　100.6 AAAレンズ　66.0 ZZZプリンタ　54.0	MMM双眼鏡
BBB		http://www.zzz.com			
CCC					
…	…	…	…	…	…

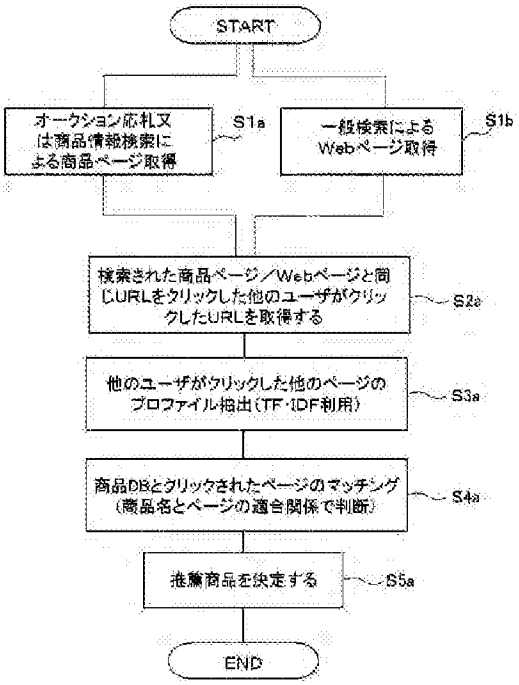
【図4】



【図5】



【図6】

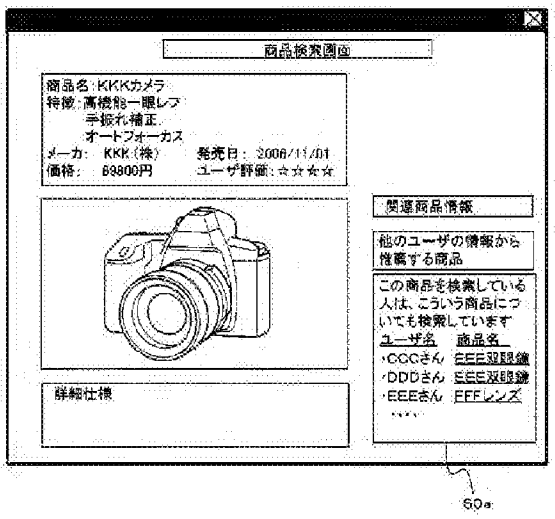


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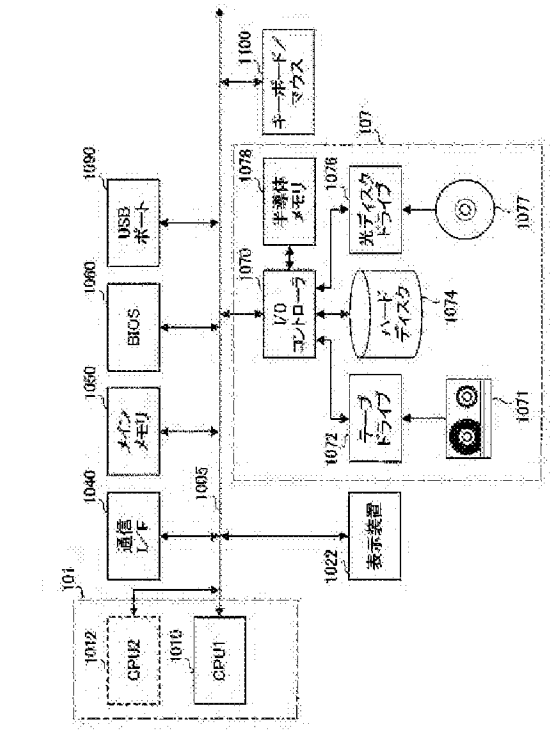
【図7】

ユーザID	商品キーワード	クリックページURL	同じページをクリックした複数ユーザID	このユーザがクリックした後のページのURL	派生商品情報
AAA	KKKカメラ	http://www.xxx.aaa	CCC	http://www.xxx.aaa http://www.xxx.iii http://www.xxx.eee	EEE双眼鏡
-	-	-	DDD	http://www.xxx.eee http://www.xxx.hhh http://www.xxx.iii	EEE双眼鏡
-	-	-	EEE	http://www.xxx.iii http://www.xxx.iii http://www.xxx.kkk	FFFレンズ

【図8】



【図9】



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Bibliographic data: JP2008027454 (A) — 2008-02-07

SYSTEM AND METHOD FOR USING VOICE OVER TELEPHONE TO ACCESS, PROCESS, AND CARRY OUT TRANSACTION OVER INTERNET

No documents available for this priority number.

Inventor(s): CARRIERE STEVEN JEROMY; QUILICI ALEXANDER E; WOODS STEVEN GREGORY ± (CARRIERE STEVEN JEROMY, ; QUILICI ALEXANDER E, ; WOODS STEVEN GREGORY)

Applicant(s): QUACK COM ± (QUACK.COM)

Classification: - international: ***G06F3/16; G06Q10/00; G06Q30/00; G10L15/00; G10L15/22; H04M3/42; H04M3/487; H04M3/493; H04M3/50***

- cooperative: **G06Q30/0241**; **G06Q30/0251**; **G06Q30/0253**; **G06Q30/0255**; **G06Q30/0269**; **G06Q30/06**; **H04M3/4938**; H04M2201/40; H04M2203/105; H04M3/4878

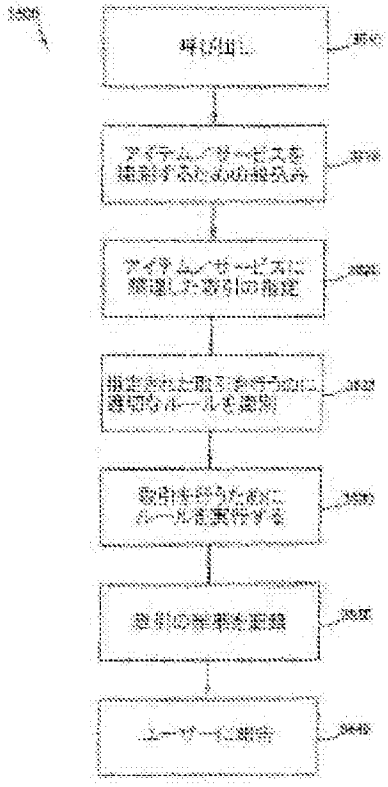
Application number: JP20070206981 20070808

Priority number (s): US20000532509 20000321

Also published as: WO0171543 (A2) WO0171543 (A3) US2011225041 (A1) US8521585 (B2) US7974875 (B1) more

Abstract of JP2008027454 (A)

PROBLEM TO BE SOLVED: To provide a method for executing a transaction related to an item or a service using a telephone, etc. ; SOLUTION: The method for executing the transaction related to the item or the service using the telephone, etc. includes stages of providing information identifying the item or the service, providing a query as to a transaction to be performed in which the transaction is related to the identified item or service, and sending to a server system a request to execute the transaction related to the identified item or service in response to a user answer. The transaction is executed without the user performing a single action on a computer interface. ; COPYRIGHT: (C) 2008,JPO&INPIT



(19)日本国特許庁(JP)　(12)公開特許公報(A)　(11)特許出願公開番号
特開2008-27454
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H04M 3/493	(2006.01)	H04M 3/493	ZEC	5K201
H04M 3/42	(2006.01)	G06F 17/60	336	
G06F 3/16	(2006.01)	H04M 3/42	P	
G10L 15/00	(2006.01)	G06F 3/16	310A	

審査請求 有　請求項の数 16　OL　（全 56 頁）　最終頁に続く

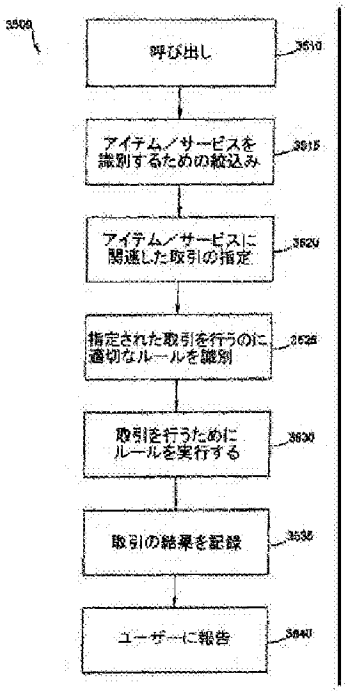
(21)出願番号　特願2007-206981 (P2007-206981)
(22)出願日　平成19年8月8日 (2007.8.8)
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原出願日　平成13年3月16日 (2001.3.16)
(31)優先権主張番号　09/532,509
(32)優先日　平成12年3月21日 (2000.3.21)
(33)優先権主張国　米国 (US)

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(54)【発明の名称】電話による音声を用いてインターネットによる取引にアクセスし、これを処理し、実行するためのシステム及び方法

(57)【要約】
【課題】電話を使ってアイテム又はサービスに関係する取引を実行するための方法等を提供する。
【解決手段】電話を使ってアイテム又はサービスに関係する取引を実行するための方法等は、前記アイテム又はサービスを識別する情報を提供する段階と、取引が、識別されたアイテム又はサービスと関係付けられる、実行されることになる取引についての問合せを提供する段階と、ユーザーの回答に応答して、識別されたアイテム又はサービスに関係付けられた取引を実行するよう、要求をサーバーシステムへ送る段階とを含んでいる。ユーザーがコンピューターインタフェースで何らの操作を実行することなく、取引は実行される。
【選択図】図３５



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【特許請求の範囲】
【請求項1】
ユーザーとのインタフェースを有し、ネットワークに接続可能なコンピュータ及びサーバーシステムにより実現された音声ポータル、及び、電話を使ってアイテム又はサービスに関係する取引を実行するための方法において、
前記アイテム又はサービスを識別する、前記コンピュータにより発生させた情報を前記音声ポータルにより提供し、前記情報は、複数のウェブサイトから得られ、複数のウェブサイトからの少なくとも２つの情報は同じであるか又は関連するかを見るために比較され、同じか関連があれば、これらの情報は融合され第３の基準情報が形成されることを特徴とし、
前記識別されたアイテム又はサービスと関係付けられている、実行されることになる取引に関する、前記コンピュータにより発生させた音声問合せをユーザーに提供する段階と、
ユーザーの音声回答に応えて、前記識別されたアイテム又はサービスに関係付けられた前記取引を実行するように、前記サーバーシステムに要求を送る段階と
を備えており、
前記取引は、前記ユーザーがコンピューターインタフェース上で何ら操作を行うことなく実行されることを特徴とする方法。
【請求項2】
前記アイテム又はサービスを識別する情報を提供する前記段階は、アイテム又はサービスの類別を選択的に識別する段階を備えていることを特徴とする、請求項１に記載の方法。
【請求項3】
前記アイテム又はサービスの類別を選択的に識別する前記段階は、アイテム又はサービスの類別の属性を選択的に識別する段階を備えていることを特徴とする、請求項２に記載の方法。
【請求項4】
前記実行される取引は購入であることを特徴とする、請求項１に記載の方法。
【請求項5】
前記実行される取引は入札であることを特徴とする、請求項１に記載の方法。
【請求項6】
前記取引の実行中に、前記識別されたアイテム又はサービスに関係する広告を選択的に提供する段階を更に備えていることを特徴とする、請求項１に記載の方法。
【請求項7】
広告を選択的に提供する前記段階は、前記識別されたアイテム又はサービスとは異なるアイテム又はサービスに関する広告を提供する段階を備えていることを特徴とする、請求項６に記載の方法。
【請求項8】
実行されることになる取引について、前記広告されたアイテム又はサービスに関連する問合せを提供する段階を更に備えていることを特徴とする、請求項７に記載の方法。
【請求項9】
ユーザーインタフェースを有し、ネットワークに接続可能なコンピュータ及びサーバーシステムにより実現された音声ポータルによって、インターネット上での取引を処理可能な音声制御式取引システムにおいて、
前記ユーザーインタフェースと連結されている少なくとも１つのデータベースとを備えており、
前記ユーザーインタフェースは、ユーザーとのコンピュータ音声通信を調整し、前記コンピュータ音声通信は、アイテム又はサービスの情報と、前記アイテム又はサービスに関連する取引とを含み、前記少なくとも１つのデータベースはアイテム及びサービスの情報

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を記憶しており、
　少なくとも１つのウェブサイトから得られた少なくとも２つの情報を比較して、同じか関連があれば、これらの情報を融合して複数のウェブサイトから集められた情報に対応する第３の基準データファイルを選択的に確立するよう構成されているフュージョンエンジンを備え、
　従って、前記ユーザーがボタンを押すことなく、マウスをクリックすることなく、或いは計算装置へ手動で入力することなく、取引が実行されることを特徴とするシステム。
【請求項10】
　少なくとも１つのデータベースと連結されているネットワークインタフェースを更に備えており、前記ネットワークインタフェースは、前記インターネット上で前記アイテム及びサービスの情報にアクセスし、前記アイテム及びサービス情報に関係付けられた要求を処理し、前記識別されたアイテム又はサービスに伴う取引を実行するよう構成されていることを特徴とする、請求項９に記載のシステム。
【請求項11】
　前記ユーザーインタフェースは特定のユーザーに対しサービスを個人向けにするように、ユーザー情報を前記ユーザーインタフェースに提供する顧客マネージャーを更に備えたことを特徴とする、請求項９に記載のシステム。
【請求項12】
　前記ユーザーインタフェースに広告を選択的に提供するよう構成されている広告サブシステムを更に備えていることを特徴とする、請求項９に記載のシステム。
【請求項13】
　前記広告サブシステムは、ユーザーに関する情報に基づいて特定のユーザーに的を絞った広告を、前記ユーザーインタフェースに提供することを特徴とする、請求項１２に記載のシステム。
【請求項14】
　ユーザーインタフェースを有し、ネットワークに接続可能なコンピュータ及びサーバーシステムにより実現された音声ポータルを使用し、インターネットベースの情報へのアクセスと、ユーザーが電話による音声を使用してサービスと通信するインターネットベースの取引の実行とを提供するためのシステムにおいて、
　アイテム又はサービスを識別する、前記コンピュータにより発生させた情報を提供し、前記識別されたアイテム又はサービスに関係付けられている、実行されることになる取引についての前記コンピュータにより発生させた音声問合せを提供するための手段と、
　インターネット上の複数のサイトからデータベースからのアイテム又はサービスを識別する情報を検索する手段と、
　少なくとも１つのウェブサイトから得られた少なくとも２つの情報を比較して、同じか関連があれば、これらの情報を融合して複数のウェブサイトから集められた情報に対応する第３の基準データファイルを選択的に確立するよう構成する手段と、
　前記提供された質問に対するユーザーの回答に応えて、前記識別されたアイテム又はサービスに関係付けられた前記取引を実行するよう、要求を前記サーバーシステムに送るための手段と
を備えていることを特徴とするシステム。
【請求項15】
　ユーザーとのインタフェースを有し、ネットワークに接続可能なコンピュータ及びサーバーシステムにより実現された音声ポータルを有する通信装置を使って、アイテム又はサービスに関係する取引を実行するためのコンピュータ読み取り可能プログラムコードを備えているコンピュータプログラムにおいて、前記コンピュータプログラムのプログラムコードは、
　前記アイテム又はサービスを識別する、前記コンピュータにより発生させた情報を提供するための第１コンピュータ読み取り可能プログラムコードと、
　前記識別されたアイテム又はサービスに関係して実行されることになる取引についての

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前記コンピュータにより発生させた音声問合せを提供するための第２コンピュータ読み取り可能プログラムコードと、

前記問合せに対するユーザーの返答に応えて、前記識別されたアイテム又はサービスに関係する取引を実行するよう、前記サーバーシステムへ要求を送るための第３コンピュータ読み取り可能プログラムコードと、

インターネットから情報を収集し、少なくとも１つのウェブサイトから得られた少なくとも２つの情報を比較して、同じか関連があれば、これらの情報を融合して複数のウェブサイトから集められた情報に対応する第３の基準データファイルを選択的に確立するための第４コンピュータ読み取り可能プログラムコードと、

を備えたことを特徴とするコンピュータプログラム。

【請求項16】

最適な取引を選択するために、複数の取引の間で比較を実行するための第５コンピュータープログラムコードを更に備えていることを特徴とする、請求項１５に記載のコンピュータプログラム。

【発明の詳細な説明】

【技術分野】

【0001】

（発明の属する技術分野）

本発明は、一般的には、インターネット及び電子商取引、即ち「ｅコマース」に関する。より厳密には、本発明は、電話による音声を用いてインターネットによる取引にアクセスし、これを処理し、実行するためのシステム及び方法に関する。

【背景技術】

【0002】

（発明の背景）

インターネットは、各人がインターネットに接続されているコンピュータを使って、大量の情報にアクセスできる媒体に発展している。インターネットを通して情報にアクセスする能力は、様々な方法で提供することができる。通常は、キーワード又はキーフレーズを求めてインターネットを探索して、テキスト又は埋込み識別子（例えばメタタグ）のような、ウェブページ内の探索ワード又はフレーズを含むウェブサイトのリストを提供する、インターネットサーチエンジンによって、情報が提供されることもある。インターネットを通して個々のウェブサイトによって、情報にアクセスすることができる。個々のウェブサイトは、時間限界性且つ時間依存性の多種多様な情報とサービスを提供する。

【0003】

インターネットは、特に電子商取引を行うのに優れている。多くのインターネットサーバーが開発されており、ベンダは、それを通して商品又はサービスを広告し、販売することができる。そのような商品又はサービスには、インターネットを通して買い手に電子的に配信されるアイテム（例えば音楽）と、従来の配送チャネル（例えば一般的な運送業者）を通じて配送されるアイテム（例えば本）が含まれる。サービスには、インターネットを通して入手できる情報（例えば天気、交通、映画、コスト比較）の提供と、インターネット上で実行される商取引（例えば株取引、レストラン予約）も含めることができる。

【発明の開示】

【発明が解決しようとする課題】

【0004】

残念ながら、インターネットは大量の情報にアクセスする能力をユーザーに提供はするが、役に立つインターネットベースの情報を見つけ出すのは、時間を要し、面倒なことが多い。更に、複数の個別のウェブサイトで入手可能な同じ情報は、複数の異なる方法で編集され、複数の異なる形態で記述され、異なる様々な時間に変更されることがあるので、それを見つけ出し、比較するの難しい。インターネットに固有のこれらの難しさに加えて、インターネットサービスプロバイダ（ＩＳＰ）経由でインターネットに接続されているコンピュータ又は別の電子装置を持っていなければ、インターネットで入手可能な情報にはアクセスできないという単純な事実もある。更に、所望のインターネットベースの情報

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を効率的に見つけ出すためには、インターネット経由での情報の探し出し方を学習しなければならない。このように、コンピュータを持っていない人、ＩＳＰと接続していない人、適切なソフトウェアを持っていない人、インターネットの利用に関して経験又は訓練経験の無い人は、インターネットベースの情報へのアクセスが制限される。これらの要因が、１９９９年の終わりまでに、米国人口の３０パーセントしかインターネットにアクセスしたことがない、即ち「ウェブをサーフィンした」ことがない（１９９９年１０月、フォレスターリサーチからの統計）と産業の専門家たちが推定する理由となっている。

【0005】

従って、直接コンピュータを使用しなくても、専用のＩＳＰ接続を持っていなくても、又はインターネット使用の経験又は訓練経験がなくても、インターネットベースの情報にアクセスできるシステム及び方法を提供することが望まれている。更に、例えば公衆電話からの音声のような、便利で容易に利用可能な手段を使ってインターネットベースの情報を入手できるようにするシステム及び方法を提供することが望まれている。更に、電話による音声を使って、インターネット上の取引にアクセスし、これを処理し、実行することができるシステム及び方法を提供することが望まれている。更に、そのような取引は、どの様なユーザーインタフェースプラットフォームについても可能でなくてはならない。

【0006】

これまで、このようなシステム及び方法に向けて多くの挑戦が行われたが、不可能であった。例えば、そのようなシステム及び方法を使う人は、情報を、迅速に、又は少なくともある許容時間内に欲しがるであろう。そのような速さの実現は難しい。従来の高速コンピュータと高速通信接続を以ってしても、インターネットにアクセスするのに必要な時間遅延のせいで、多くの人に「ワールドワイドウェブ」ではなく「ワールドワイドウェイト」と呼ばせることになる。そのようなシステム及び方法へのもう１つの挑戦は、音声通信の認識である。従来の音声認識技術は、遅い上に不正確である。音声によるインターネットベースの情報への便利で有用なアクセスには、簡単、迅速且つ正確な音声認識が必要とされる。にもかかわらず、既知のプロセッサ及び記憶装置では、人対人の対話においてなされる音声認識に不可欠な大量の語彙及び処理速度への迅速なアクセスを実行できていない。

【0007】

そのようなシステム及び方法に関するもう１つの挑戦は、サービスを財務的にサポートしながら、インターネットベースの情報への自由なアクセスをどのように提供するかということである。従来のインターネットでの広告は、「バナー」のような広告情報を見て、バナーを「クリックする」というような何らかの手動的選択を行って、広告されている商品又はサービスに関する更なる情報を得るという能力を必要としている。

【0008】

従って、上記性能に加え、無料でインターネットベースの情報へ迅速且つ正確に音声アクセスすることのできるシステム及び方法を提供することが望まれている。更に、音声及び無線アクセスプロトコル（ＷＡＰ）を含め、インターネットベースの取引に必要な情報及び処理を、様々なプラットフォームのユーザーに提供するシステム及び方法を提供することが望まれている。

【課題を解決するための手段】

【0009】

（発明の概要）

本発明の実施例の１つの態様は、アイテム又はサービスに関する取引を、電話を使って実行するための方法である。本方法は、アイテム又はサービスを識別する情報を提供する段階と、識別されたアイテム又はサービスに取引が関係付けられる、実行されることになる取引についての問合せを提供する段階と、ユーザーの回答に応えて、識別されたアイテム又はサービスに関係付けられた取引を実行する要求をサーバーシステムへ送る段階を含んでいる。取引は、ユーザーがコンピュータインタフェースで何らの動作も実行することなく行われる。

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【0010】
本発明の実施例のもう１つの態様は、要約すると、インターネット上で取引を処理する音声制御式取引サービスである。このサービスは、ユーザーインタフェースと、少なくとも１つのデータベースとを含んでいる。ユーザーインタフェースは、アイテム又はサービスの情報とアイテム又はサービスに関連する取引が含まれる、ユーザーとの音声通信を調整する。データベースは、ユーザーインタフェースと連結され、アイテムとサービス情報を記憶する。取引は、ユーザーがボタンを押すことなく、マウスをクリックすることなく、コンピューター装置へ何ら手動入力することなく実行される。
【0011】
本発明の実施例の又別の態様は、要約すると、インターネットベースの情報へのアクセスとインターネットベースの取引の実行を提供するためのサービスであり、ユーザーは、電話による音声を使って、そのサービスと通信する。このサービスは、アイテム又はサービスを識別する情報を提供し、識別されたアイテム又はサービスに関係付けられる。実行されることになる取引についての問合せを提供するための手段と、提供された質問に対するユーザーの回答に応えて、識別されたアイテム又はサービスに関係付けられた取引を実行する要求を、サーバーシステムへ送るための手段を含んでいる。
【0012】
本発明の実施例の又別の態様は、要約すると、アイテム又はサービスに関係する取引を通信装置を使って実行するための、コンピュータ読み取り可能プログラムコードを備えたコンピュータプログラム製品である。このコンピュータプログラム製品のプログラムコードは、アイテム又はサービスを識別する情報を提供するための第１コンピュータ読み取り可能プログラムコードと、識別されたアイテム又はサービスに関係付けられた、実行されることになる取引についての問合せを提供するための第２コンピュータ読み取り可能プログラムコードと、問合せに対するユーザーの応答に応えて、識別されたアイテム又はサービスに関係付けられた取引を実行する要求を、サーバーシステムへ送るための第３コンピュータ読み取り可能プログラムコードを含んでいる。取引は、ユーザーが手動操作を実行することなく行われる。
【0013】
本発明のこの他の特徴及び利点は、添付図面、詳細な説明、及び特許請求の範囲に記載した事項を見て頂ければ、当業者には明白であろう。
【発明を実施するための最良の形態】
【0014】
（代表的実施例の詳細な説明）
本発明は、例を用いて説明しているが、添付図面によって何ら制限されるものではない。なお、図中、類似参照番号は類似要素を表している。
【0015】
電話による音声を用いて、インターネットによる取引にアクセスし、これを処理し、実行するためのシステム及び方法を説明する。以下の記述では、説明を目的として、本発明を完全に理解して頂くために数多くの具体的な詳細事項について述べている。しかしながら、当業者には明らかなように、本発明はこれら具体的な詳細事項に制約されることなく実施することができる。その他の例では、本発明の好適な実施例を説明し易くするために、周知の構造及び装置をブロック図の形で示している。
【0016】
本発明の代表的な実施例の１つの態様は、アイテム又はサービスに関係した取引を、電話を使って実行するための方法を含んでいる。本方法は、アイテム又はサービスを識別する情報を提供し、識別されたアイテム又はサービスに取引が関係付けられる。実行されることになる取引についての問合せを提供する段階と、ユーザーの回答に応えて、識別されたアイテム又はサービスに関係付けられた取引を実行する要求を、サーバーシステムに送る段階を含んでいる。取引は、ユーザーがコンピュータインタフェースで何らの動作も行うことなく実行される。

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【0017】
本システム及び方法は、消費者が、従来の商店又は電話アクセスが利用できる何処かで買い物をしている間に、オンライン小売業者から価格付け情報を入手して、注文できるようにする音声ベースの電話サービスを含んでおり、好都合である。音声ユーザーインタフェースは、ユーザーが興味を持った製品を特定的に識別できるようにする一連の質問を問い合わせることができるようになっており好都合である。これらの問い合わせのプロンプトは、製品のタイプが違えば様々に変えることができるし、実行時に設定変更することもできる。ユーザーは、回答を音声で伝えることによって、必要ならばスペリング及びＤＴＭＦ（二重トーン多重周波数、即ち、電話でのタッチトーン）に落として応答することができる。更に、音声ユーザーインタフェースは、仮想製品データベース（局所的にキャッシュされた情報とインターネットから実行時に検索された情報から構成される）と対話することができる。更に、音声ユーザーインタフェースは、様々なオンライン小売業者からの製品の価格付け及び入手可能性に関する情報を。消費者へ最小の遅延時間で戻すことができる。更に、音声ユーザーインタフェースは、ユーザーが、小売業者を選択して製品を注文できるようにする。

【0018】
本発明のもう１つの態様は、インターネットベースの情報及びサービスへの音声アクセスを提供するシステムに関係している。本発明の更に別の態様は、１つのウェブサイトが他のウェブサイトと同じ情報を持っているかどうか判定するためのシステム及び方法に関係している。本発明の更に別の態様は、インターネットの音声ポータルを使って広告するためのシステム及び方法に関している。本発明の更に別の態様は、インターネットベース情報の変換に用いられるルールの非プログラミング開発のためのシステム及び方法に関している。本発明の更に別の態様は、所望のアイテムを決定するために、インターネット音声ポータルシステムでユーザーの応答を送るためのシステム及び方法に関係している。本発明の更に別の態様は、組織的に構築されたデータの変換及び基準化に関係している。

【0019】
ある実施例では、メモリ内に含まれている一連の命令を実行する中央演算処理装置（ＣＰＵ）を有するコンピュータシステムが用いられている。更に特定すると、連続した命令の実行が、ＣＰＵに、以下に説明する段階を実行させる。命令は、実行に備えてＣＰＵによって、読み取り専用メモリ（ＲＯＭ）、大容量記憶装置、又は幾つかの他の恒久記憶装置から、ランダムアクセスメモリ（ＲＡＭ）内へとロードされる。他の実施例では、本発明を実施するために、ソフトウェア命令の代わりに、又はソフトウェア命令と組み合わせて、結線接続回路が用いられる。従って、ここに記載されている実施例は、ハードウェア回路とソフトウェアとの特定の組み合わせに限定されず、コンピュータシステムによって実行される命令に関する特定のソースにも限定されない。

【0020】
図１は、音声ポータル１０とネットワーク２０の間の接続を示している。代表的実施例では、ネットワーク２０は、インターネット、即ち、ＴＣＰ／ＩＰネットワークプロトコルを使ってデータの伝送及び交換を容易にするコンピュータネットワークの世界規模のネットワークである。別の実施例では、ネットワーク２０は、バーチャル私設ネットワーク（ＶＰＮ）のような、何れかのタイプのネットワークである。ネットワーク２０は、ハイパーテキストマークアップ言語（ＨＴＭＬ）ウェブページ３０及び４０との通信を提供するのが望ましい。ウェブページ３０及び４０は、様々なウェブサーバー上の様々なデータを含んでいる。ネットワーク２０は、更に、コンピュータ５２及び５４とデータベース５８を含んでいるサービス５６とをネットワーク２０に連結する、非音声ポータル５０との通信も提供する。サービス５６は、ネットワーク２０との接続を有する、何らかのタイプの会社、コンテンツ又はサービスプロバイダである。データベース５８はデータ用の記憶媒体であり、光学的、磁気的又は他の何れかの好適な記憶媒体である。

【0021】
一般的に、音声ポータル１０は、サーバーのネットワークとして実現される。サーバー

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は、ソフトウェアによって構成できる。サーバーは、ディスクドライブ及び他の記憶装置を含む大量の読み取り／書き込みメモリを備えているのが望ましい。一般に、ユーザーは、携帯電話１２又は固定電話１４のような電話で、電話と音声ポータル１０との間の通信を開始する電話番号（一般的な旧来の電話サービス（ＰＯＴＳ））を呼び出すことによって、音声ポータル１０にアクセスする。代わりに、音声又は音声データをポータル１０へ伝達するのに別のタイプの電話サービスを利用してもよい。ポータル１０は、様々なライン、ネットワーク及びステーション経由で、電話１２及び１４と接続することができる。音声ポータル１０は、ユーザーとの音声通信を提供するので好都合である。音声ポータル１０は、ユーザーが、ウェブページ３０及び４０、及びネットワーク２０経由で利用可能な他のソースからの情報及びサービスにアクセスできるようにする。そのようなアクセスは、音声ポータル１０によって迅速且つ効果的な方法で提供され、様々なウェブサイト及びインターネットサービスからの情報を継続して検索し、編成し、記憶する。他のユーザーインタフェースプラットフォームも、音声ポータル１０を使うように設けられている。そのようなユーザーインタフェースプラットフォームは、例えば、ＷＡＰ（無線アプリケーションプロトコル）及びウェブインタフェースを含んでいる。

【0022】

図２は、音声ポータル１０によって実行される代表的な機能的オペレーションを示している。これらの機能は、任意の数の物理的な構造を含む様々な方法で実行される。代表的な実施例では、音声ポータル１０は、ユーザーインタフェース１１０と、広告サブシステム１２０と、顧客管理サブシステム１３０と、イグジスタンツサブシステム１４０と、フュージョンエンジン１５０と、更新エンジン１６０と、データベース１７０を含んでいる。

【0023】

ユーザーインタフェース１１０は、音声ポータル１０とユーザーとの間の音声通信を調整する。ユーザーインタフェース１１０は、音声、インターネット即ち「ワールドワイドウェブ」（ＷＷＷ）、無線アプリケーションプロトコル（ＷＡＰ）インタフェースによるもの、又は何れの他のプラットフォームインタフェースであってもよい。代表的な実施例では、ユーザーインタフェースは音声指向である。そのような音声指向の実施例では、ユーザーインタフェース１１０は、可能なあらゆる場所でユーザー入力を受信するために、ワードベースの自動音声認識（ＡＳＲ）を利用する。ユーザーインタフェース１１０は、マサチューセッツ州ボストンのスピーチワークスインターナショナルから提供されているスピーチワークスのような音声認識ソフトウェアパッケージを用いることができる。高速の音声認識のために、ユーザーインタフェース１１０は、ユーザーの応答を一式の認識可能な回答に絞り込む絞り込みプロセスを利用しており好都合である。絞り込みについては、図３４と関連付けて更に説明することとする。ユーザーインタフェース１１０は、ワードベースのＡＳＲが使用不能である場合、ユーザー入力を受信するためにスペリングベースのＡＳＲを用いる。最終的に、ユーザーインタフェース１１０は、ユーザーに利点がある場合にだけ、ユーザー入力を受信するのにキーパッド入力を用いる。キー入力は、電話１２及び１４のキーを利用する（図４）。

【0024】

代表的な実施例では、ユーザーインタフェース１１０は、下記の内の１つ又は複数のタスクを実行する。（１）電話番号と、その他のユーザー固有の情報でユーザーを確認する。（２）所与のプラットフォーム上の所与のユーザーに対し新しいセッションを開始する。（３）所与のプラットフォーム上の所与のユーザーに対し新しい命令を追加する。（４）音声ポータル１０で利用可能な関心対象の一式の垂直ドメイン内でのユーザーの嗜好を更新する。（５）関心対象の前記垂直ドメインに関するユーザーの嗜好を使用可能又は使用禁止にする。（６）ユーザーの技能レベルを全体的に、又は特定の垂直内で更新する。（７）ユーザーの人口統計上の情報、又は個人的な情報（並びにクレジットカード情報）を更新する。（８）ユーザーのセッション状態を、ユーザーインタフェース特定情報と共に更新する。（９）新しいクレジットカードをデータベースに加える。（１０）現在のク

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レジットカードを新しい情報と共に更新する。（１１）クレジットカードをクレジットカードのタイプと番号とで識別し、既にデータベースにあるかどうか検査する。（１２）ユーザーに利用可能な垂直ドメインのリストとその順序を設定する。（１３）ユーザーのセッションを正常に終了する。（１４）顧客管理サブシステム１３０に、ユーザーのセッションが変則的に終了してある所定の状態（例えば、対話中断、セッションタイムアウト）にあることを通知する。（１５）セッションが変則的に終了されていたら（例えば、対話中断、セッションタイムアウト）、セッションを再開できるように、所与のプラットフォームを与えられたユーザーの最近のセッションを判定し、記憶されているセッション状態を返す。ユーザーインタフェース１１０は、識別、セッション、ユーザー及び支払いプロトコルに関係した追加機能を実行することができる。

【0025】

広告サブシステム１２０は、通信セッション中にユーザーに提示される広告に関する活動を調整する。ある代表的な実施例では、広告サブシステム１２０は、スポンサー付の広告、特定のユーザーに的を絞った広告、及びユーザーからの積極的な要求の後にだけ提示される許可ベースの広告のような広告を含んでいる。ある代表的な実施例では、広告サブシステム１２０は、以下の機能の内１つ又は複数の機能を提供する。（１）ユーザー、セッション、ロケーション、コンテンツ、及び探査されているアイテムに基づいて、上演する広告を選択する。（２）広告が上演されたこと、それが完了したか否かということを記録する。（３）スピークスルー（即ち、以下で述べるように、ユーザーが広告された対象について更に聴くことを選択的に選択する広告）が行われたことを記録する。（４）データベース呼び出しを繰り返す必要が無いように、顧客及びセッション情報をビーン内に記憶する。（５）広告を提供する会社に関する記録を作成し、それを識別できるようにする。（６）データベース内に記憶されるべき広告、及び広告契約（１つの広告が、システム上の用途によって異なる契約を有しているかもしれないので）を作成する。（７）広告販売目的の場合は、新しい販売雇人又は雇主の契約を作成する。（８）広告及び／又は前記広告の契約を更新する。（９）広告会社を更新して、契約情報及びアドレス情報を変更する。（１０）販売雇人及び雇主の契約を更新する。（１１）アクティブリスト内に広告を配置する／アクティブリストから広告を除去する。（１２）外部情報に基づいて、広告契約が完了しているか又は未完了であるかをマークする。（１３）広告のタイプに基づき、アクティブな広告のリストを表示する。（１４）非アクティブかアクティブか、未完了であるか完了しているか、又は単に全部広告かという基準に基づいて、会社に関係している広告リストを表示する。（１５）上記基準に基づいて、広告に関係している契約のリストを表示する。（１６）上記基準に基づいて、販売雇人に関係している契約リストを表示する。（１７）単に独自の識別子を通過させることにより、雇人、会社、広告又は広告契約の完成リストを検索する。（１８）雇人、会社、広告及び広告契約イグジスタンツの近似ストリング整合を求めて、データベースを探索する。（１９）特定の契約で会社に支払った受け渡しの経緯を保持し、傑出した会社のバランスを更新できるようにする。（２０）データの完全性に関するエラーが確実に存在しないようにするために、更新ログを探索する。（２１）特定ジャンルに関する広告を記憶するのに必要な上演リストを作成及び変更する。

【0026】

これらのオペレーションそれぞれを実行するのに、多種多様な方法を用いることができる。広告オペレーションについては、図３６に関連して更に説明する。広告サブシステム１２０は、識別、セッション、ユーザー及び支払いプロトコルに関係する追加の機能を実行することができる。本明細書で開示されている広告技術は、従来型のパーソナルコンピュータ（ＰＣ）インタフェースウェブ接続を使って利用することもできる。

【0027】

顧客管理サブシステム１３０は、ユーザー及びユーザーの音声ポータル１０の利用に関係する情報の管理を調整する。ある代表的な実施例では、顧客管理サブシステム１３０は、ユーザーインタフェース１１０、広告サブシステム１２０及び音声ポータル１０の他の

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機能によって選択的に利用される、嗜好及び人口統計のようなユーザーに関する情報を取得する。顧客管理サブシステム１３０は、識別、セッション、ユーザー及び支払いプロトコルに関係する追加の機能を実行することができる。サブシステム１１０、１２０、１３０は別々に記述されているが、それぞれのオペレーションは、本発明の原理から逸脱することなく、単一ユニットに統合することができる。

【0028】

ユーザーインタフェース（ＵＩ）１１０と顧客管理サブシステム１３０は、垂直ドメインの選択とインターネットベースの情報へのアクセスを提供するために対話する。垂直ドメインは、様々な分野又は領域を類別し、ユーザーはそこから音声ポータル１０内で選択することができる。ＵＩ１１０がユーザーと効果的に通信するためには、一定の嗜好とユーザーに関する事実が、確認され、受動的にしろ能動的にしろ理解されねばならない。顧客管理サブシステム１３０は、そのような情報をデータベース１７０に記憶する。代わりに、個々の顧客のデータベースがそのような情報を保持することもできる。

【0029】

顧客管理サブシステム１３０は、顧客の嗜好及び事実を判定するのに必要な情報をＵＩ１１０から取得する。ＵＩ１１０は、データを顧客管理サブシステム１３０へ送り、顧客管理サブシステム１３０はそれを処理して、それを少なくとも１つのデータベースへ中継する。更に構文解析するために、イグジスタンツサブシステム１４０内の嗜好の更新が行われる。その後、イグジスタンツサブシステム１４０は、ユーザーの嗜好及び事実のような情報をＵＩ１１０へ送り返す。

【0030】

顧客管理サブシステム１３０は、応答時間をそれほど長くすることなく、修正可能であり、拡張可能であり好都合である。そのため、新しい垂直ドメインを音声ポータル１１０に加えるプロセスは迅速で、安定している。常に新しい垂直ドメインを加えることができるので、顧客の事実及び人口統計上のタイプを完全に定義することはできない。

【0031】

顧客管理サブシステム１３０は、ユーザーによってなされた、データベースを通して契約され、契約解除された全取引を記録する。更に、顧客管理サブシステム１３０は、ユーザーが構成された履歴リスト内に配置しているアイテムを記録し、ユーザーが（ウェブサイト上やＷＡＰ装置を通じて）閲覧したコレクションを追跡する。

【0032】

顧客管理サブシステム１３０は、契約済みの顧客を、可能なとき何時でも、可能な限り受動的に識別する。従って、顧客の認識は、例えば、電話番号及びシステム加入のＩＤ（「ＰＩＮ」）のようなある種の識別キーを通して行うのが望ましい。この識別は、顧客に関連した一定の嗜好、及び嗜好の各セット内での顧客の経験レベルに繋がることが望ましい。更に、本システムは、購入を正式に認可する前に、追加の識別のレベル（例えば、パスワードの識別）が、記憶されているクレジットカード情報に対して作られるようにする。

【0033】

顧客管理サブシステム１３０は、各垂直ドメイン内に一式の嗜好を保持して、音声ポータル１０経由でのユーザー対話をやり易くする。例えば、ある代表的な実施例では、顧客管理サブシステム１３０は、どのタイプの広告を顧客に提供するか、どのように顧客のサービスを向上させるか決定するのを助けるために、顧客から情報を収集する。顧客管理サブシステム１３０は、それぞれサポートされているドメインに適切な顧客の嗜好を維持し、顧客データをデータソースから動的に更新する。例えば、関心対象のオークションドメインでは、現在のビット状況は、ユーザーの要求で更新される。音声ポータル１０は、そのドメインに適切な通貨によってデータをユーザーに示すので、好都合である。例えば、関心対象のオークションドメインでは、ビットは数秒以内で常に最新状態にある。関心対象のｅコマースドメインでは、価格付け情報は、購入価格が示されている時点の最新のものである。

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【0034】
顧客管理サブシステム１３０は、どのユーザーがどのサービスにアクセスしているかを判定できるように、報告と分析を提供するので好都合である。更に、顧客管理サブシステム１３０は、例えば、一定の収入グループ、性別、又は年齢層からのユーザーによってアクセスされるのはどのサービスかを判定するような、異なる人口統計学上のセグメントによるセッション及び取引の履歴に関する報告を提供する。更に、顧客管理サブシステム１３０は、実際の利用に基づいて、関連の報告を提供する（例えば、映画に関心のあるユーザーによりアクセスされているのは、他のどのサービスであるかを報告する能力）。
【0035】
１つのプラットフォームからもう１つのプラットフォームへ（例えば、電話からウェブへ、電話からＷＡＰへ）継続して価値を追加しユーザーと共に移行するために、顧客管理サブシステム１３０は、個人に合わせた特性をサポートし、顧客の経験をサービスによって向上させるので好都合である。個人化に加えて、他の「スティッキネス」（競争の点で顧客はサービスと「スティッキング」している）のソースは、共通の関心対象に関して友人又は家族のネットワークのようなコミュニティ特性のサポートを含んでいる。従って、個人化特性及びコミュニティ特性が、顧客管理サブシステム１３０と共に含まれているとすれば、顧客は、特定のサービスプロバイダにより忠実であろうとする。
【0036】
サービス（又は広告）の、顧客の行動への適用をサポートするため、顧客管理サブシステム１３０は、サービスの利用を追跡するので好都合である。更に、インタフェース評価の領域では、インタフェース階層の典型的なユーザー探査が、問題領域か又は非常に有用な領域か、或いは、単一セッション内の副次的特徴の相関関係にあるセットかの識別を助ける。音声ポータル１０のサービスの重要な属性のもう１つの例はタイミングである。例えば、「バージ・イン」（ユーザーは、リスト又はプロンプトが終了する前に、回答することで中断することができる）の利用は、より進んだユーザーを示すことができ、特定のユーザーに対して繰り返される単一のサブツリーへのバージ・イン選択のストリングは、顧客管理サブシステム１３０により感知され、全体的なものか、又は可能性としては顧客特定のものである、ショートカットへの機会へ繋げられる。
【0037】
「スティッキネス」の態様は、顧客の嗜好へのサービスの適用である。このことは、非反復的「署名」又は「購入」データ入力要件のサポートにおいて顧客情報保存のような比較的簡単な特性を含むこともできるが、異なるフロントエンドにおける特定の対話のサブツリーのナビゲーションに関する嗜好、及びサービス／ベンダ順序付け又は選択に関する嗜好を含むこともできる。ベンダ嗜好又は順序付けの例として、ユーザーは、「好適なベンダ」を選択して、音声ポータル１０に従って見つけた製品に関する売り手リストを２つ、即ち、安いものと好みのものとに限定することができる。
【0038】
垂直的嗜好は、ユーザーの行動に基づいて受動的に設定されるべきである。即ち、受動的な嗜好は、特定の属性を２回以上要求した後で設定される。或いは、嗜好はダイナミックで、ユーザーの行動に基づいて変わる。ユーザーは、受動的な嗜好を全て、音声又はウェブインタフェースのどちらかを通じて設定又は再設定することによって、オーバーライドできるのが望ましい。
【0039】
顧客管理サブシステム１３０は、株情報、天気の好み等のようなユーザーの嗜好を、マイヤフーやマイエキサイトの様な個人向けのウェブページから引き出すことができる。個人向けのウェブページは、従来のインターネット接続経由でユーザーが先に作成しておくことができる。代わりに、個人向けウェブページは、ユーザーの音声コマンドに応えて、顧客管理サブシステム１３０が構築することもできる。これらのページは、次に音声ポータル１０と共に用いられるように翻訳することができる。特定の垂直的嗜好又は最近の呼び出し嗜好が存在しない場合、好都合に、一般的な嗜好をデフォルト時嗜好として用いる

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ことができる。

【0040】

以下は、代表的な垂直的嗜好要件のリストとその説明である。それぞれの嗜好は、各インタフェースを通して別々に用いられる。ある代表的な実施例では、天気に対する嗜好のみが、顧客が要求する位置に関する天気である。デフォルトにより、ユーザーの位置はそのＺＩＰコードである。最も一般的に用いられている位置は、利用可能であれば、最近の呼び出し位置によってオーバーライドすることができる。

【0041】

関心対象のスポーツドメインでは、閲覧すべき異なる嗜好が幾つかある。あるスポーツのスコア、スケジュール、成績をユーザーに送ることもできる。ウェブサイトについては、排他的に、あるスポーツの広告及び情報を送らないように使うこともできる。例えば、あるユーザーは、ホッケーの試合の情報は聞きたくないが、野球の情報は欲しいかもしれない。第２に、あるチームが他よりも好まれるにつれて、嗜好の細分化を高めることができる。これらの細分化されたそれぞれで、限定された選択の最新使用（ＭＲＵ）リストを用いて嗜好リストを決定することもできる。更に、スポーツ及びチームの嗜好のタイプ、好みのイベントを用いてもよい。

【0042】

関心対象の映画ドメインでは、必要な嗜好には、顧客の地域性及び映画館の地域性、映画のタイプ（例えばスリラー、ホラー、アクションなど）、映画の格付け（ＡＡ，Ｇ，Ｒなど）、顧客のお気に入りの映画俳優／映画女優が出演する映画が含まれている。これらの嗜好のそれぞれは、限定された選択であるＭＲＵリストに挙げられている。

【0043】

関心対象の交通ドメインでは、利用される主な嗜好は、属性として時間を備えている、ユーザーが目的地に到達するのに利用したい特定のルートである（最新のものはデフォルト値）。従って、限られたルートのＭＲＵリストは、顧客の嗜好リストを構成することができる。

【0044】

ある代表的な実施例では、関心対象の株ドメインに関する嗜好について２レベルの階層がある。先ず、マーケットリストに対する嗜好があり、次に各マーケット内で、見るべき株や指数の嗜好がある。又、マーケット及び株のＴＢＤ選択のＭＲＵリストは一覧表にしてもよい。関心対象のその他の垂直ドメインには、レストラン、コンサート、ライブイベント、タクシー、飛行機の予約が含まれる。

【0045】

図２に示すように、イグジスタンツサブシステム１４０は、ユーザーインタフェース１１０、広告サブシステム１２０、顧客管理サブシステム１３０、フュージョンエンジン１５０及び更新エンジン１６０による、データベース１７０へのアクセスを調整する。イグジスタンツサブシステム１４０は、データベース１７０内に含まれるデータ構造の作成、適用及び操作を管理する。データベース１７０内に含まれるデータは、更新エンジン１６０によってインターネットソースから集められる。ある代表的な実施例では、データベース１９０内で利用されるデータ構造は、「イグジスタンツ」又はシングの階層、それらの関係、及びお互いの関連性に基づいている。データベース１７０は、イグジスタンツサブシステム１４０とだけ対話するので、データベース１７０内の情報を複製及び修正する機能は、容易に実行される。イグジスタンツ及びそれらの作成は、図４－１０に関連して更に説明することとする。具体的に、イグジスタンツに関するある代表的なデータ構造モデルを、図４－６に関連して説明するが、イグジスタンツに関しては、様々な別の構造を利用することもできる。イグジスタンツの作成及び更新は、図７－１０に関連して説明されている。

【0046】

フュージョンエンジン１５０は、２つのイグジスタンツが同じか否かを判断して、同じならそれらのイグジスタンツを融合させ、第３の基準イグジスタンツを形成する。このよ

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うに、フュージョンエンジン１５０は、１つのソースから集められた情報が、他のソースから集められた情報に関係しているか、又は同じであるかをはっきりさせる。フュージョンエンジン１５０の機能は、図２５、２６、２７に関連して説明することとする。

【0047】

更新エンジン１６０は、データベース１７０内に含まれている情報及び属性を更新するため、インターネットから情報を検索する。ある代表的な実施例では、更新エンジン１６０は、データベース１７０内の情報を更新するために、インターネットから情報を検索する「スパイダ」を利用する。更新エンジン１６０のオペレーションは、図７及び８に関連して更に説明することとする。

【0048】

データベース１７０は、顧客データ、広告情報、製品及びサービス情報のような、音声ポータル１０によって利用される情報を記憶する。データベース１７０内の情報は、イグジスタンツ、イグジスタンツの属性、イグジスタンツの関係、イグジスタンツの結びつきの中に記憶される。イグジスタンツとはどういうものか、イグジスタンツはどのように形成されるのか、イグジスタンツは互いにどのように関係しているのか、イグジスタンツは音声ポータル１０の機能性とどのように関係しているのか、ということについては、以下に説明することとする。別の実施例では、複数のデータベースが、顧客データ、広告情報及びオペレーションの記録などの特定のタイプの情報に用いられる。

【0049】

図３は、音声ポータル１０の代表的な物理的配置を示している。これらの物理的構造は、単なる例示である。図示のものと組み合わせて、或いは、図示の代わりに、他の構造を用いてもよい。ある代表的な実施例では、音声ポータル１０には、フロントエンドサーバー２１０と、フロントツーバックネットワーク２２０と、バックエンドサーバー２３０と、バックエンドネットワーク２４０が含まれている。ユーザーは、電話を通して、フロントツーバックネットワーク２２０によってバックエンドサーバー２３０に連結されている、フロントエンドサーバー２１０と通信する。

【0050】

ある代表的な実施例では、バックエンドサーバー２３０は、プロキシマネジャー２４５と、プロキシ２５０と、ビーン２６０と、データベース２７０を含んでいる。プロキシマネジャー２４５は、フロントツーバックネットワーク２２０を通して、フロントエンドサーバー２１０の１つからの情報に対する要求を受信する。プロキシマネジャー２４５は、バックエンドネットワーク２４０を通して通信し、各プロキシマネジャー２４５のワークロードレベルを判定する。一旦適切なプロキシマネジャー２４５が決定されると、適切なプロキシマネジャー２４５は、自由なプロシキのプール２５０から自由なプロキシを引き出して、そのプロキシをビーン２６０へ割り当てる。ビーン２６０は、情報を検索し、情報を挿入し、イグジステンツ又はイグジステンツの関係を探索し、又はデータベース２７０に関して可能な他の機能を実行するために、データベース２７０と関連付けられている。

【0051】

図３と関連して説明されているバーチャルデータベース構造は、インターネット２０から手に入れた情報を、時間的にも技術的にも実用的な方法で音声ポータル１０のユーザーに送るように設計されている。人々は、様々な設定と方法で、情報を必要とし利用するので、好都合に、音声ポータル１０が、限定するわけではないが、電話（例えば、音声、ＷＡＰ及びその両方）、ウェブ及び携帯可能に接続された計算装置（例えば、Ｐａｌｍ（Ｒ）ＯＳデバイス、ＷｉｎＣＥ（Ｒ）デバイス、ＲＩＭページャー）を含む様々なプラットフォーム上でこれをサポートする。

【0052】

バックエンドサーバー２３０は、データの収集及びフュージョン（融合）を含む様々な特徴を備えたデータベースサービスサポートを含んでいる。データ収集は、図７及び８と関連して説明されているように、特定のアイテムタイプ及び／又はサイトに対してスケジ

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ュールされている定期的なインターバルで、インターネットソースからデータを蓄積することを含んでいる。音声ポータル１０は、図９及び１０と関連して説明されているように、データソースサイトへの変更を感知し、適切なサイトルールマネジャーに通知する。図９及び１０と関連して説明されているように、音声ポータル１０は、更に、データソースに対して、データ抽出の一般的な定義をサポートする。

【００５３】

音声ポータル１０は、「フュージョン（融合）」のプロセスで、異なるインターネットベンダからの同じアイテムを識別する。フュージョンプロセスの間、音声ポータル１０は、全情報のソースに関するメタデータを保持する。メタデータはデータに関するデータを含んでいる。例えば、メタデータは、データ要素又は属性（名称、規模、データのタイプなど）に関するデータ、記録又はデータ構造（長さ、分野、コラムなど）に関するデータ、データに関するデータ（どこに配置されているか、どのように関連付けられているか、所有権など）に関する資料である。更に、必然性が自動的に決定されない場合、音声ポータル１０は、非専門家によるフュージョン決定又は非決定の対話的明確化をサポートする。音声ポータル１０は、更に、コード変更なしで、新しいデークのタイプ及びデータ要素を追加することをサポートする。更に、音声ポータル１０は、マーケット調査、試験及び機会を通して識別された相関性のドメイン特定の概念をサポートする。例えば、関心対象のｅコマースドメインでは、安くて、良質で、一緒に買うことが多くて、最も人気があるのは、重要な相関性の概念である。関心対象の映画ドメインでは、関係する映画及び製品、及び、あるカテゴリーでベストの映画、最も人気のある映画、なつかしのベスト映画、役者によるベスト映画は、重要な相関性概念である。音声ポータル１０は、アイテム（例えば製品説明）についての詳細事項を追加するのに必要な関連情報を集めて保持する。フュージョンのオペレーション及び機能性は、図２５－２７と関連して更に説明することとする。

【００５４】

図４は、音声ポークル１０のデータベース１７０に用いられている代表的なデータ構造モデル３００を示しており、その中で、「イグジスタンツ」（又はシング）は属性、アソシエーション、及び関係を与えられる。イグジスタンツ同士の「継承」関係は、先端に三角形が付いた実線で示されている。イグジスタンツ同士の「アソシエーション」関係は、先端が開いた矢印の点線で示されている。継承関係を例にとると、データ構造モデル３００では、ブロック３１０は「イベント」である。「イベント」は「イグジスタンツ」又はシングであり、ブロック３２０へ向かう三角形先端の矢印３１５で示されている。同様に「映画上映」（ブロック３３０）は「イベント」（ブロック３１０）であり、三角形先端矢印３３５で示されている。アソシエーション関係の例では、イベントは「行為地」と関連付けられており、ブロック３４０へ向かう先端が開いた矢印３４５で示されている。同様に、映画上映（ブロック３３０）は、先端が開いた矢印３５５で示すように、「映画パッケージ」（ブロック３３０）と関連付けられている。イベントは、スポーツイベント、ドラマ、コンサート、喜劇、花火大会、ダンス大会又は他の活動であってもよい。

【００５５】

データ構造モデル３００は、図４に示すようにもっと多くのイグジスタンツ、アソシエーション及び関係を含んでいるが、ここでは説明しない。更に、データ構造モデル３００は、この他にも図面に含まれていないイグジスタンツ、アソシエーション及び関係を含んでいる。図４は、説明のためだけのものである。

【００５６】

図５には、代表的なデータ構造モデル４００が示されており、ユーザー又は顧客オブジェクトと別の垂直クラスとの間のオブジェクト指向関係が提示されている。継承及びアソシエーション関係の説明は、図４に関連して説明したデータ構造モデル３００の説明と同じである。ある代表的実施例では、データ構造モデル４００内に配置されるユーザー情報は、データベース１７０内に含まれている。しかし、別の実施例では、そのようなユーザー情報は、個別の顧客データベースに含まれている。

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【0057】
顧客はイグジスタンツ（顧客イグジスタンツブロック４０２）であり、階層内で最高レベル直下の子孫、即ち「イグジスタンツ」イグジスタンツであり、従って、その全特性を受け継いでいる。この構造の背後にある理由は、データベース１７０及びその方法は既に作成され、構造はコードを再利用できるようになっていることである。
【0058】
顧客オブジェクトは様々な情報の断片を含んでいる。総体的な嗜好クラスは、「交通」、「天気」及び「映画」のような嗜好に関する情報を含んでいる。顧客が関心対象の新しい別の垂直ドメインに参入する度に、垂直ドメインの名称に対する嗜好オブジェクトのインスタンスが作成され、嗜好データが挿入される。垂直ドメインが既に存在している場合、オブジェクトは、更新された情報によって修正される。
【0059】
セッションクラスは、ユーザーのセッション（セッションブロック４０４）に関する情報を直接記録する。セッションは、呼び出しであってもよいし、ウェブサイトを通しての探索であってもよいし、ＷＡＰを用いる呼び出しであってもよい。日時及び期間のようなデータは一般的な属性であるが、ユーザーが固定電話から呼び出したか携帯電話から呼び出したかについての分析は、電話セッションに特定的なことである。このタイプのデータは、音声ポータル１０が（広告目的で）マーケティングを誰に向けるかを決定し、性能及びサービスの両方を改良するのに有用である。同様に、顧客オブジェクトは、これらのセッションのオブジェクトそれぞれにリンクしており、（ユーザーがセッションを終了し、その特定時間に再接続したい場合）そのプラットフォームの最新のセッションは何であったかを判定する。
【0060】
電話セッションブロック４０８は、ポータル１０との通信に電話が用いられる通信セッションに関係する情報を記録する。電話セッションブロック４０８は、現在の対話のレベル、現在の関心対象のドメイン、インタフェースプラットフォームのタイプ（例えばＷＷＷ、ＷＡＰ、ＡＳＲ）、閲覧した前回のレベルなどの情報を含んでいる。電話セッションブロック４０８は、ユーザーが、前回のセッションで止めたセッション又は中断したセッションに再参加できるようにするので好都合である。クレジットカード情報イグジスタンツ、場所イグジスタンツ、嗜好イグジスタンツのような他のイグジスタンツブロックは、関連した属性を含んでおり、必要に応じて情報を記録する。
【0061】
専門技術クラス（専門技術ブロック４０６）は、異なるプラットフォーム（即ち、電話、ＷＡＰ、ＷＷＷ）を通して（総体的に、且つ異なる嗜好に対して）異なるレベルの使用適性を維持するという目的を果たす。顧客は、これらのクラスインスタンスのそれぞれにリンクしている。これらは、嗜好はプラットフォームを横断できるのに対してユーザーの機能はできないので、嗜好クラスには含まれない。
【0062】
図６は、広告に関係した情報用の、音声ポータル１１０のデータベース１７０で用いられる代表的なデータ構造モデル４５０を示している。継承及びアソシエーション関係の説明は、図４のデータ構造モデル３００の説明と同じである。ある代表的な実施例では、データ構造モデル４５０内に配置された広告情報は、データベース１７０に含まれる。しかし、別実施例では、そのような広告情報は、個別の広告データベース内に含まれている。
【0063】
データ構造モデル３００、４００、４５０は、イグジスタンツ、アソシエーション及び関係に関する情報の配置を連続して拡大するので好都合である。更に、モデル３００、４００、４５０は、迅速に、且つ先に入力されている情報を変更することなく、関心対象の新しい垂直ドメインの作成に配慮している。例えば、モデル３００は、本、玩具及び電子機器のような商品に関係した情報と同時に、映画及びコンサートのようなイベントに関係した情報も含んでいる。バレエのようなどんなイベントでも、「イベント」との継承関係

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及び適切なアソシエーション関係を有するイグジスタンツとして容易に加えることができる。同様に、車両のようなどんな商品でも、「製造済みのアイテム」との継承関係及び適切なアソシエーション関係を有するイグジスタンツとして容易に加えることができる。データ構造モデル３００、４００、４５０の動的な性質及び発展的な能力は、音声ポータル１０に、インターネットベースの情報及びサービスの広い範囲に対して統一されたポータルであるという利点を与える。

【0064】

図７は、代表的なデータ構造モデル３００（図４）、データ構造モデル４００（図５）、データ構造モデル４５０（図６）に示されているイグジスタンツのようなイグジスタンツの代表的な作成プロセスのフローチャート７００を示している。ステップ７１０では、インターネット上のウェブページが見つけ出される。代表的な実施例では、所定のアイテムのカテゴリに関係している特定のウェブページを見つけ出すのに、スパイダが用いられる。スパイダは、文書を検索し、その中で引用されている幾つかの又は全ての文書を反復的に検索することにより、ワールドワイドウェブ（ＷＷＷ）を自動的に探査する従来式の既知のプログラムである。それに対し、人間によって操作される通常のウェブブラウザは、インライン画像及びＵＲＬリダイレクション以外のリンクに自動的に従うことはない。ステップ７１０が実行された後ステップ７２０が実行されるが、そこで情報は、ページをオーバーレイして特定の情報を浮過する選択されたフォームを用いて、見つけ出されたウェブページ上で識別される。ステップ７２０の後ステップ７３０が実行されるが、そこでは、ステップ７２０でのフォームオーバーレイによって検索された情報から特徴的な情報又は属性を識別するのに、ルールが利用される。特徴的な情報又は属性は、イグジスタンツが何であるかを定義する。ルールは、イグジスタンツ属性の構成を定義する。例えば、映画イグジスタンツは、タイトル、ディレクター、出演者、封切り年、あらすじという属性を含んでいる。

【0065】

ステップ７３０が実行された後ステップ７４０が実行されるが、そこでは、属性はイグジスタンツ内で編成され、イグジスタンツはデータベース１７０内に記憶される。イグジスタンツ内での属性の編成と配置は、予め定義されたルールによって組み立てられる。

【0066】

図８は、図７と関連して述べられているイグジスタンツの代表的な作成プロセスを示している。スパイダ８１０は、様々な異なるウェブページに記憶されている情報を求めてインターネット２０を点検する。スパイダ８１０によって検索された情報は、その情報をデータ構造８３０内に入れるために、ルール８２０に従って編成され配列される。ある代表的な実施例では、スパイダ８１０は、インターネット２０から映画に関する情報を検索する。例えば、スパイダ８１０はＩＭＤＢウェブサイトを点検して、特定の映画のタイトル、ディレクター、出演者、封切り年、上映時間に関する情報を検索してもよい。一旦映画情報がデータ構造８３０内に記憶されると、データ構造８３０は、辞書テーブル８４０に適用される。辞書テーブル８４０は、データ構造８３０内に含まれる属性を編成し、情報を３つの列に配置する。ある代表的な実施例では、辞書テーブル８４０の第１列はオリジナルデータを含んでおり、第２列は正規化されたタグ付きのフォーマットのオリジナルデータを含んでおり、第３列は探索可能でマッシュされたフォーマットのデータを含んでいる。辞書テーブル８４０とデータ構造８３０は、データベース１７０内のメモリ構造内に備えられている。

【0067】

例えばスパイダ８１０が映画「レイダース、失われたアーク」に関係する情報を求めてインターネット２０を点検する場合、インターネット２０から検索されたデータは、映画に対応するルールに対して適用され、データ構造８３０内に配置されることになる。そのような映画のルールは、タイトル、ディレクター、出演者、封切り年を含んでおり、全てが映画の属性である。この例では、タイトルは「レイダース、失われたアーク」で、ディレクターは「スティーブン・スピルバーグ」で、出演者は「ハリソン・フォードとカレン

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・アレン」で、封切り年は「１９８１年」で、上映時間は「１１５分」である。従って、辞書テーブル８４０には、タイトルが、オリジナルフォーマットでは「Ｒａｉｄｅｒｓ　ｏｆ　ｔｈｅ　Ｌｏｓｔ　Ａｒｋ」で、正規化されたタグ付きフォーマットでは＜ｔｉｔｌｅ＞Ｒａｉｄｅｒｓ　ｏｆ　ｔｈｅ　Ｌｏｓｔ　Ａｒｋ＜／ｔｉｔｌｅ＞で、探索可能でマッシュされたフォーマットでは、スペースや識別冠詞（例えば、ｔｈｅ、ａ、ａｎ）を入れずにＲａｉｄｅｒｓＬｏｓｔＡｒｋで含まれることになる。

【0068】

図９は、非プログラミング手段を使ってインターネットベースの情報を集める代表的なプロセスを示すフローチャート９００である。ステップ９１０では、探索ページが見つけ出され、パターンを使って関連情報を含んでいる前記ページ上の領域が分離される。ステップ９１０が実行された後ステップ９２０が実行されるが、そこでは適切なフォームが見つけ出され、特定のルーチンが呼び出されて実際のデータと情報が抽出される。ステップ９２０の後ステップ９３０が実行され、ここでは特定のページが与えられれば、関係情報を備えた複数のページが見つけ出される。データ特定のパターンとは別に、データ特定のパターンが特定のページ内のどこで作用するかを定義する領域パターンがある。ステップ９３０が実行された後ステップ９４０は実行され、複数のページ上の製品又はサービスを更にリストするためのリンクが見つけ出される。ある代表的な実施例では、予測ルーチンを使って、コードサンプルから製品リスティングする実際のパターンを計算する。

【0069】

一般的に、予測ルーチンは、ルールライターによって与えられる所望の出力からパターンを計算する。ルールライターは、それを生じさせるためにパターンを開発する必要無しに、単に、抽出したいテキストフラグメントをＨＴＭＬコードからペーストしなければならないだけなので、パターン予測ルーチンは、生産の速度を上げ、好都合である。パターンを書き込むのに現在用いられている入力フィールドは、このデータを挿入するのに用いられる。

【0070】

例を挙げると、予測ルーチンは、先ずルールライターにウェブページ上のサンプル著者名を著者フィールドにコピーさせることによって、本に関するデータを与えているウェブページ用の著者データのパターンを開発する。その後アルゴリズムは、サンプルデータをウェブページ上のその位置へ合わせる。照合されたデータに近接する文字又はタグは、「接頭部」及び「接尾部」として識別される。接頭部は、照合されたデータの前の文字であり、接尾部は照合されたデータの後の文字である。接頭部及び接尾部は、パターンを構成するのに用いられる。

【0071】

構成されたパターンは、別のデータと照合させるためにウェブページに適用される。構成されたパターンが、所望の結果と異なるデータを取り上げる場合、更に完全で正確なパターンを求めて、パターンを開発するために用いられる接頭部及び接尾部が加えられる。パターンを改良するため、この手順が繰り返される。

【0072】

この例を更に明らかにするために、本に製品データを与えているウェブページから以下のＨＴＭＬコードを取り上げる。

【0073】

```
<html>
<title>Programming Perl<html>
written by < b >Larry Wall< /b >
<html>

<html>
<title>Learning Perl(< b >2nd edition< /b >) </title>
written by < b >Randal Schwartz< /b >
```

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</html>
【0074】
ルールライターは、著者フィールド内の「Ｌａｒｒｙ　Ｗａｌｌ」をダンプして、これは著者を抽出するためのデータであることを示す。
【0075】
パターン予測アルゴリズムは、おおよそ以下のように作用する。

```
n=1;
repeat
$page=~m/(.{n)Larry\s+Wall(.{n)/x;
$prefix=$1;
$suffix=$2;
$page=~m/$prefix (.*?) $suffix/x;
n=n+1;
until ($leq<desired_>);
```

【0076】
１ページ目をｎ＝１で開始すると、アルゴリズムは、$prefixは値「>」を取り$suffixは値「<」を取ることを意味する「>Larry　Wall<」とマッチする。次に、パターン予測アルゴリズムは、第１ステップから得た＄１及び＄２の値を使って、パターン「>(.*?)<」を構築する。このパターンを、ウェブページに対してマッチさせると、所望の結果「Larry　Wall」とは異なる「>Programming　Perl<」という結果になる。従って、ｎがｎ＝２に増加され、パターンは、接頭部及び接尾部に別の文字を含むように改良される。ウェブページを「(.{2)Larry\s+Wall(.{2)」とマッチさせると、$prefixは値「b>」を取り、$suffixは値「</」を取ることを意味する「b>Larry　Wall</」となる。次に、パターン予測アルゴリズムは、第１ステップから得た＄１及び＄２の値を使って、パターン「b>(.*?)</」を構築する。このパターンを、ウェブページに対してマッチさせると、所望の出力である「Larry　Wall」という結果になる。
【0077】
次に、ルールライターがウェブページを通して異なるページに同じパターンを適用するときに、彼又は彼女は、そのパターンが、本「Learing　Perl」に関するページの「第２版」とマッチすることを発見する。次にルールライターは、第２例となる望ましい結果を与えてアルゴリズムを改良し（即ち、彼又は彼女は、「Randal　Schwartz」をＧＵＩ入力フィールドへダンプする）、そのことがパターン予測アルゴリズムのトリガとなって、<ｂ>の前に「ｙ」を強要するパターンが作成されるまで、更にｎを増やす。アルゴリズムは、必要なウェブデータ及び必要なパターンの複雑さ次第で、幾つかの対話を実行する。
【0078】
ステップ９４０が実行された後ステップ９５０が実行され、ベンダ特定データ抽出ファイルが作成される。ある代表的な実施例では、コードサンプルから関連ＵＲＬを計算するルーチンが用いられる。代わりに、ＵＲＬを計算するルーチンをフォームとして送ってもよい。ステップ９５０が実行された後ステップ９６０が実行され、キャッシュが作成される。ステップ９６０が実行された後ステップ９７０が実行され、製品データの抽出のためのパターンが作成される。ある好適な実施例では、回帰テスト機構が特別なルーチンの編集をサポートする。
【0079】
図１０は、音声ポータル１０に関連するルールの非プログラミング開発に関する代表的なプロセスを示している。この代表的なプロセスでは、一式のルールライター１０１０の内の１つのルールライターは、データソース１０３０、データソース１０３５、データソース１０４０、又はＷＷＷ１０２０と接続されている他のデータソースの内の何れかからの情報にアクセスするために、ワールドワイドウェブ（「ＷＷＷ」）１０２０にアクセスする。データソースから検索されたデータは、データ編成ツール１０２５を用いてデータ構造に配置される。ルールライター１０１０は、データ編成ツール１０２５を使って、多

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数の可能なフォームの内の１つを、ＷＷＷ１０２０を通して入手可能な情報の「ページ」へ適用する。そのようなフォームは、ページ上に関連情報の位置を提示し何らかの特徴的なタグを付けて表示される。例えば、ＷＷＷ１０２０上に提供されたページは、ページの左上隅にデータ入力ボックスを含んでいる。更に、部品又はサービスの関連情報は、本のタイトルに対しては「＜ｔｉｔｌｅ＞」のようにＨＴＭＬタグの後に配置される。

【００８０】

なお、ここで用いる「ページ」という用語は、データ、メッセージ、レポート等の図式又はテキスト表示を提供するスクリーンのような、診断システムのユーザーが見ることのできる、ユーザーインタフェースのスクリーン又は同様の装置を含むものとする。更に、そのようなページは、Java（登録商標）、Perl、Java（登録商標） Scriptのようなマークアップ言語又はプログラミング言語、或いは他の好適な言語によって定義することができる。

【００８１】

データソースからのデータは、ルールライター１０１０によってデータ編成ツール１０２５から選択されたフォームを使って、データ構造１０４５、データ構造１０５０、データ構造１０５５、又は、情報を維持するための同様の構造に編成される。データ構造１０４５、１０５０、１０５５は、比較、融合してもよいし、統合データ構造１０６０の形態で利用してもよい。統合データ構造１０６０はデータベース１０７０に記憶される。

【００８２】

図１０に示す代表的なプロセスでは、非専門ルールライター１０１０が、データ編成ツール１０２５により提供される多数のフォームから選択し、ＷＷＷ１０２０を通して入手可能な特定のウェブサイトからの情報の検索に利用できるようになっており、好都合である。このように、データソース１０３０、１０３５、１０４０からのウェブページ上に含まれているデータは、ルールライター１０１０によって選択されたフォームで、データ編成ツール１０２５を使って、データベース１０７０へ継続して更新することができる。データ構造１０４５、１０５０、１０５５内に含まれている情報は正確を期して比較されるので、データ編成ツール１０２５は、ウェブページが、それらの対応するウェブページ上でデータのフォーマット又は配列を何時変更したのかを検知する。

【００８３】

図１１－２４は、新しいルール作成のある代表的なプロセスを示している。更に、図１１－２４は、ルールライターとデーク編成ツール１０２５（図１０）との間で可能な対話を示している。１つの代表的なルールは、現存のルール、即ちthe Amazon.com book productsに基づいている。このルール構築に用いられているステップは、他のルール構築に用いられているステップと同じである。

【００８４】

図１１は、ルール８２０（図８）の作成を開始するのに用いられるグラフィカルユーザーインタフェース（ＧＵＩ）１１１０を示している。このＧＵＩ１１１０は、ベンダーウインドウ１１２０と、スパイダー選択ウインドウ１１３０と、問合せウインドウ１１４０と、ステイタスウインドウ１１５０と、サーチボックスエリア１１６０と、コードウインドウ１１９７とを含んでいる。サーチボックスエリア１１６０は、スライダバー１１７０と、右セットの矢印１１８０と、左セットの矢印１１９０と、サーチウインドウ１１９５とを含んでいる。

【００８５】

新しいデータソースを開始するには、ルールライターは、ベンダーウインドウ１１２０内のデータソース（例えばアマゾン・ブック）に入る。ルールライターは、「Enter」を押し、「New」ボタンをクリックする。この動作が実行されると、図１２に示すグラフィカルユーザーインタフェース（ＧＵＩ）１２００が表れる。ルールライターは、データソースが正しくリストアップされていることを確かめた後、「Done」ボタンをクリックする。次に、図１３に示すグラフィカルユーザーインタフェース（ＧＵＩ）１３００が表れる。選択されたベンダー名に対応するＵＲＬが表示される。ルールライターは、正しいＵＲ

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Ｌを確認するよう求められる。アマゾン・ブックの例では、ＧＵＩのウインドウ１３００にＵＲＬ　http://www.AmazonBook.comが現れる。しかし、ＵＲＬリンクは、http://www.AmazonBook.comを読み取らなければならない。ルールライターはＵＲＬを訂正し、「Done」ボタンをクリックする。

【0086】

図１１に戻るが、ルールライターは、所望されている問合せのタイプを選択する。先ず、ルールライターは、問合せウインドウ１１４０を選択し、可能性のある問合せのリストから選ぶ。例えば、「本の包装」は、関心対象の本の垂直ドメインに関する可能性のある問合せである。この探索は、ルールライターが問合せウインドウ１１４０の「ＳＤＥ」（探索データエディタ）上のボタンをクリックすれば開始する。ＳＤＥボタンは探索データエディタを呼び出し、探索データエディタは、図１４に示すグラフィカルユーザーインタフェース（ＧＵＩ）１４００を提供する。ＧＵＩ１４００は、関心対象の特定アイテムの探索に便利な属性リストを示している。例えば、本が探索される場合、ＩＳＢＮ又はＵＰＣのような属性が示される。別のアイテムの探索である場合、そのアイテムに相当する属性がリストアップされる。「映画上映」を探索すると、映画パッケージ、時間及び封切り期日のような属性がリストアップされることになる（図４に関連して説明されているブロック３３０を参照のこと）。

【0087】

ルールライターは、ＩＳＢＮ番号を相当するデータボックスへタイプし、「Done」をクリックする。ＧＵＩ１４００のボタン１４３０は、ルールライターが、別の探索の間に、異なる探索基準をセーブできるようにするので好都合である。一旦探索基準が入力されると、ルールライターは「Done」をクリックし、特定のデータソース（即ち、AmazonBook）にルールが定義されていないので、図１５に示すグラフィカルユーザーインタフェース（ＧＵＩ）１５００が現れる。ＧＵＩ１５００は、ルールライターが新しいルールを追加するか、又は探索データを変更することを望んでいるかどうかをたずねる。この例では、ルールライターが「Add」ボタンをクリックし、ＧＵＩ１５００は拡張して、図１６に示すグラフィカルユーザーインタフェース（ＧＵＩ）１６００になる。

【0088】

次に図１６では、ルールライターは、正しいタイプの問合せが強調表示されていることを確認する。この例では、ＩＳＢＮが強調表示され、ルールライターは「Yes」ボタンをクリックする。図１７に示すグラフィカルユーザーインタフェース（ＧＵＩ）１７００が現れ、アマゾン・ブックのホームページがネットスケープブラウザにロードされていることをルールライターに教える。ルールライターは、ＩＳＢＮルールに関連するウェブページをブラウズするよう指示される。一旦探索ページがインターネットブラウザにロードされると、ルールライターは「Done」ボタンをクリックする。

【0089】

図１８に示すグラフィカルユーザーインタフェース（ＧＵＩ）１８００は、ルールライターにより選択されるべきフォームオプションを示す。フォームが正しければ、ルールライターは「Done」ボタンをクリックする。リストされているフォームの中に、ルールライターが必要とする選択肢がなければ、ルールライターは「Next」ボタンをクリックして、そのページの別のフォームを見る。一旦マッチするページが見つかると、図１９に示すグラフィカルユーザーインタフェース（ＧＵＩ）１９００が表示される。

【0090】

データ編成ツール１０２５（図１０）は、インターネットブラウザ内の結果のページを表示する。ページが正しければ、ルールライターはＧＵＩ１９００上で「OK」をクリックする。図２０に示すグラフィカルユーザーインタフェース（ＧＵＩ）２０００が現れ、探索が複数のアイテムにマッチする場合は、そのページ上の１つのアイテムをどのように検出するかを問い合わせてくる。更にＧＵＩ２０００は、問合せのアイテムについての詳細を得るのにＵＲＬの何処を探すかを示すのに用いられる。アイテムが１つしか見つからなければ、正規の表現式を構築するには情報が十分に提示されていないので、ルールライク

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ーは「Defer」ボタンをクリックする。複数のアイテムが見つかると、正規の表現式がデータウインドウ２０１０へ入力される。例えば、１つの著者が複数の本を書いているかもしれないので、著者探索は複数のアイテムを戻してくるかもしれない。別の場合で、問合せが１つのアイテムに合致しているだけのときでも、情報を入手するために追加のＵＲＬリンクに従うのが必要なこともある。

【0091】

次に図２１に示すグラフィカルユーザーインタフェース（ＧＵＩ）２１００が現れ、複数の製品ページを検出するのに用いられる。ルールライターが探索されたアイテムへ直接行く場合、正規の表現式を構築するのに情報は必要ない。図１１に戻るが、コードウインドウ１１９７は、検索されたページからのＨＴＭＬコードで満たされている。この時点で、ルールライターは、属性を指定するよう準備している。属性は、正規の表現式を名前の次のボックスに入れることによって指定される。正規の表現式は、表現式の結果として、（括弧を使って）その中の１つのサブストリングを指定しなければならない。例えば、「この（全て）のマッチ」という正規の表現式は、（正規の表現式はマッチできると仮定して）その結果として「全て」を戻すことになる。例えば、本のタイトルを見つけるのに用いられるパターンを決定するには、ルールラーターは、本のタイトルを探索ウインドウ１１９５へタイプする必要がある。様々なＨＴＭＬ信号を用いることができる。「＼ｓ*」は、単語と単語の間の可能性のあるブランクスペースを示すのに必要である。探索ウインドウ１１９５に入力された探索ストリングの第１のマッチは、ＨＴＭＬコードで見つけられた第１のマッチを強調表示する。例えば、タイトルは、幾つか余分な情報を備えた一対の＜ｔｉｔｌｅ＞タグの内部に見つけられる。本のタイトルの代表的な属性は、「＜ｔｉｔｌｅ＞（[^<]*）＜/ｔｉｔｌｅ＞」である。一旦属性が入力されると、その属性に対する全てのマッチが見つけ出される。

【0092】

図１４に戻るが、探索データエディタ１４００は、値をタイプ次第の属性に割り当てるのに用いられるフォームで構成されている。ステイタスウインドウは、データ編成ツール１０２５が何を行っているのかを示す。ある代表的な実施例では、ステイタスはアイドル状態で、インターネット上で問合せを実行し、キャッシュを使っている。問合せウインドウ１１４０は、ルールライターが、課題のデータソースに所望される問合せのタイプを設定し、ＳＤＥボタンを使って探索基準を設定できるようにする。

【0093】

スパイダ選択ウインドウ１１３０は、ルールライターが、問合せ探索を行っていなければ使用すべきスパイダを設定できるようにする。ある代表的な実施例では、可能性のあるスパイダのタイプは、フル、漸増、特別及び参照である。フルスパイダは、選択されたタイプにマッチする全てのアイテムを取る。漸増スパイダは、通常、インターネットデータソースからのデータの更新をピックアップするのに用いられる。特別スパイダは、通常、本のベストセラーのような特別な、サイトが持っている何かをピックアップするのに用いられる。参照スパイダは、通常、そのサイトはまだ作動しており、ルールが作用していることを確認するのに用いられる。

【0094】

ベンダーウインドウ１１２０は、ルールライターが、データソースを作動するよう設定できるようにする。探索ウインドウ１１９５は、ルールライターが、テキストをＨＴＭＬコードで検索できるようにする。コードウインドウ１１９７には、テキスト入力の位置を示すカーソルがある。左セットの矢印１１９０は、第１の番号を含んでおり、キャッシュから実行するときに探索が始まる開始点である。第２の番号は、キャッシュ内のページの合計数を示している。このウインドウの矢印セットは、ルールライターがキャッシュから実行する時に、開始するページを制御する。右セットの矢印１１８０は、検索されたページをスクロールする矢印を含んでいる。

【0095】

スパイダは問合せと似ているが、どのルールも適用できない場合に呼び出される。スパ

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イダは、指定されたタイプとマッチするウェブサイトの全オブジェクトに関する情報を集める責任を負っている。スパイダは、幾つかの入れ子ループから成り、各入れ子ループは、階層内へと１つ深いレベルへ進むように設計されている。図２２には、本のスパイダに関して代表的なスパイダ階層２２００が示されており、レベル２２１０は開始ページであり、レベル２２２０は本のカテゴリページであり、レベル２２３０は、本のサブカテゴリページであり、レベル２２４０は本のページを示す。

【0096】

図２３に示すように、グラフィカルユーザーインタフェース（ＧＵＩ）２３００は、スパイダルールに関連付けられるページのＵＲＬを検索するのに用いられる。スパイダデプススライドルールは、ルールライターが、データ編成ツール１０２５に、実際の製品ページへ行き着くのどれほどの数のリンクが必要かを告げることができるようにする。上側境界スライドルールは、ルールライターが、スパイダに対するアイテム数の上限を指定することができるようにする。一旦ＵＲＬが選択され、スパイダデプス及び上側境界が選択されると、ルールライターは「Done」ボタンをクリックする。図２４に示すグラフィカルユーザーインタフェース（ＧＵＩ）２４００が現れる。ルールライターは、図１１に関連して説明した問合せに対して入力された探索パターンと同じ様式で用いるために、スパイダに探索パターンを入力する。一旦パターンが入力されると、ルールライターは、「Build」ボタンをクリックし、スパイダは実行を開始する。

【0097】

図１１－２４に関連して示し、説明したグラフィカルユーザーインタフェースは、非専門のルールライターがデータ探索を実行し、情報検索用のルールのフォームを作成することができるようにするので好都合である。一旦フォームが作成されると、そのフォームは、更新された情報を集めるのに頻繁に利用することができる。更に、フォームは、ベンダーによるウェブサイトでの情報の配列及び表示に対応する共通のフォームを使って、ベンダーのウェブサイトで入手可能な大量の情報を検索するのに役立つ。非専門家によるルール作成のフォームは、ウェブサイトで入手可能な情報を低コストで更新できるようにする。更に、このフォームは、インターネットベースの情報の正確な検索を自動化するのに好都合である。

【0098】

図２５は、データベース内の情報を融合する代表的なプロセスを示している。図２５に示す代表的な実施例では、フローチャート２５００は、フュージョンエンジン１５０（図２）で実行される単純な融合プロセス、即ち「クイックフュージョン」を表している。ステップ２５１０では、更新エンジン１６０は、ネットワーク２０から情報を受信し、その情報を、イグジスタンツサブシステム１４０経由で、データベース１７０内のイグジスタンツデータ構造に配置する。フュージョンエンジン１５０は、イグジスタンツサブシステム１４０経由で、更新エンジン１６０からイグジスタンツへアクセスし、イグジスタンツサブシステム１４０はデータベース１７０にアクセスする。ステップ２５１０が実行された後ステップ２５１５が実行され、そこでフュージョンエンジン１５０は、ステップ２５１０で検索されたイグジスタンツに対応する属性定義テーブルから正確な融合属性を集める。ステップ２５１５が実行された後ステップ２５２０が実行され、そこでフュージョンエンジン１５０は、データベース１７０から検索されたイグジスタンツからの各融合属性の、容易に比較できるフォームへの「マッシュ」を実行する。ある代表的な実施例では、「マッシュ」フォームは、スペース、前置詞及び他の非本質的ワードを削除する。「マッシュされた」フォーマットは迅速な探索機能を提供するので好都合である。

【0099】

ステップ２５２０が実行された後ステップ２５２５が実行され、フュージョンエンジン１５０はデータベース問合せを公式化して、そこでデータソースが「同一」に設定され、ステイタスが「標準」に設定される。この問合せは、現在の情報にマッチしている同じデータソースファイルから、すでに存在している標準イグジスタンツを見つけようとしている。ステップ２５２５が実行された後ステップ２５３０が実行され、そこで、データベー

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ス１７０でのマッチが見つかるかどうか決定される。ステップ２５２５の問合せによってデータベース１７０でのマッチが見つかれば、ステップ２５３５が実行され、そこでデータベース１７０内に含まれるイグジスタンツが更新される。

【0100】

ステップ２５２５の問合せからデータベース１７０内にマッチが見つからなければ、ステップ２５４０が実行され、そこでステップ２５２５の問合せは再度公式化され、データソースは「同一」に設定され、ステイタスは「非標準」に設定される。この問合せは、現在の情報にマッチしている同じデータソースファイルから、すでに存在しているイグジスタンツを見つけようとしている。ステップ２５４０が実行された後ステップ２５４５が実行され、そこで、ステップ２５４０の再度公式化された問合せから、データベース１７０内でマッチが見つかるかどうか決定される。マッチが見つかれば、ステップ２５５０が実行され、そこでデータベース１７０内に含まれるイグジスタンツが更新される。

【0101】

データベース１７０内でマッチが見つからなければ、ステップ２５５５が実行され、そこで問合せは、データソースを「任意」に、ステイタスを「標準」に設定して再度公式化される。この問合せは、現在の情報にマッチしている何れかのデータソースから、すでに存在している標準的なイグジスタンツを見つけようとしている。ステップ２５５５が実行された後ステップ２５６０が実行され、そこで、データベース１７０内でマッチが見つかるかどうか決定される。データベース１７０内でマッチが見つからなければ、ステップ２５６５が実行され、そこでイグジスタンツがデータベース１７０に追加される。

【0102】

データベース１７０内でマッチが見つかるか、又はステップ２５５０が実行された後で、ステップ２５７０が実行され、そこで、マッチはシステムイグジスタンツであるかどうか決定される。マッチがシステムイグジスタンツであれば、ステップ２５７５が実行され、システムイグジスタンツが更新される。マッチがシステムイグジスタンツでなければ、ステップ２５８０が実行され、標準的なシステムイグジスタンツが形成される。ステップ２５５０が実行された後ステップ２５８５が実行され、そこでこのイグジスタンツがデータベース１７０に加えられる。ステップ２５８５が実行された後ステップ２５９０が実行され、融合テーブルが更新される。

【0103】

図２５に示すデータベース内の情報融合に関する代表的なプロセスは、複数のウェブサイトに情報の比較を提供する。このように、１つのウェブサイトが他のウェブサイトと同じ情報を含んでいるかどうか決定することができる。更に、音声ポータル１０のデータベース１７０内に含まれている情報は、インターネットベースのソースからの情報、関係、及びアソシエーションを継続して加えることができ、それにより、データソースから検索される情報に、より大きな利便性が提供される。

【0104】

図２６は、代表的な融合処理で行われるステップを描いたフローチャート２６００を示している。図２６に説明する代表的な処理では、融合処理は、図２５に関連して説明したフローチャート２５００に示す融合処理に比べ、より包括的であることが分かる。ステップ２６１０で、フュージョンエンジン１５０は、データベースから属性定義テーブルを読み出す。ステップ２６１０を実行した後ステップ２６１５が実行され、フュージョンエンジン１５０は、先行融合を要求する各イグジスタンツタイプに関しフュージョン制御言語ファイルを読み出す。ステップ２６１５を実行した後ステップ２６２０が実行され、フュージョンエンジン１５０はフュージョンファイルを中間コンピュータコードにコンパイルする。ステップ２６２０を実行した後ステップ２６２５が実行され、フュージョンエンジン１５０はこれまでに融合したイグジステンツをメモリに保持する。ステップ２６２５の後ステップ２６３０が実行され、フュージョンエンジンは属性を等価セットに収集する。ステップ２６３０の後ステップ２６３５が実行され、属性がテキスト的であるか否かを判定する。フュージョンエンジン１５０が、属性はテキスト的ではないと判定した場合は、

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ステップ２６４０が実行され、その値に索引をつける。フュージョンエンジン１５０が、属性はテキスト的であると判断した場合は、ステップ２６４５が実行され、フュージョンエンジン１５０は当該属性のサブストリング出現に索引をつける。

【0105】

ステップ２６４５の後ステップ２６５０が実行され、フュージョンエンジン１５０は、テキストが構造化されているか否かを判定する。テキストが構造化されていない場合は、ステップ２６７０が実行される。テキストが構造化されていると判定された場合、フュージョンエンジン１５０は、ステップ２６５５で、当該テキストの場所及び構造内の分離セグメントを識別する。ステップ２６５５の後ステップ２６６０が実行され、フュージョンエンジン１５０は分離部分を構文解析して意味論的情報を識別する。ステップ２６６０の後ステップ２６６５が実行され、フュージョンエンジン１５０は意味論的情報に索引づけを行う。ステップ２６６５の後ステップ２６７０が実行され、フュージョンエンジン１５０は妥当性チェックを実施し、データベース１７０の完全性を検証する。ステップ２６７０の後ステップ２６７５が実行され、フュージョンエンジン１５０はイグジスタンツを検索して融合する。

【0106】

ステップ２６７５の後ステップ２６８０が実行され、フュージョンエンジン１５０は、対応するイグジスタンツタイプに対しフュージョン基準及びマッチングプログラムを起動させる。フュージョン基準及びマッチングプログラムには、図１０に関連して既に説明したように確立された現存ルールを適用する。ステップ２６８０の後ステップ２６８５が実行され、フュージョンエンジン１５０はフュージョン基準及びマッチングプログラムから第１のフュージョンルールを実行してマッチしたもの全てを戻す。ステップ２６８５の後ステップ２６９０が実行され、受け入れ可能なマッチが見つかったか否かを判定する。ある代表的な実施例では、受け入れ可能なマッチとは、所定割合（例えば７０％）の属性が共通であるものとされている。別の実施例では、受け入れ可能なマッチとは、全ての属性が同じ値を有するものとなっている。受け入れ可能なマッチが見つかると、ステップ２６９７が実行され、フュージョンエンジン１５０はイグジスタンツを融合して一体化する。受け入れ可能なマッチが見つからない場合、ステップ２６９１が実行され、次のフュージョンルールを実行してマッチしたもの全てを戻す。

【0107】

ステップ２６９１の後ステップ２６９２が実行され、受け入れ可能なマッチが見つかったか否かを判定する。受け入れ可能なマッチが見つかった場合、ステップ２６９７が実行され、フュージョンエンジン１５０はイグジスタンツを融合して１つに纏める。イグジスタンツを融合することには、融合されるべきイグジスタンツに関連付けられ且つその中に全情報を保有している新しいイグジスタンツを作成することが含まれる。受け入れ可能なマッチが見つからなかった場合、ステップ２６９３が実行され、最後のルールを試したか否かを判定する。最後のルールを試していない場合、ステップ２６９１が再度実行される。最後のルールが試されている場合、ステップ２６９４が実行され、フュージョンエンジン１５０は、強い部分的マッチがあるか否かを判定する。ある代表的な実施例では、強い部分的マッチとは、７０％というようなある程度のパーセンテージ内にマッチがあるものとされている。強い部分的マッチが存在する場合、ステップ２６９８が実行され、差異が人的検査に委ねられる。部分的マッチが見つからない場合、ステップ２６９５が実行され、フュージョンエンジン１５０がフュージョンの作成を拒否し、ステップ２６９９が実行され、新しいイグジスタンツが作成される。

【0108】

図２６に示すデータベース内の代表的な情報融合処理では、同一又は異なるデータソースからの情報を自動的に比較でき好都合である。このように、データベース１７０に保有されている情報は、継続的に更新され、他のデータソースからの情報に対する関連性を付与されることになる。更に、フュージョンは、インターネット上で個別的に利用できる何百万ものデータベースよりも完全且つ頑丈に一体化したデータベースのコンパイルを配慮

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している。

【0109】

図２７は、２つのデータ構造から標準データ構造を作成する代表的処理を示している。データフィル２７００は、固有識別番号により識別され、第１のデータファイル２７１０、第２のデータファイル２７２０、及び標準データファイル２７３０を保有している。ある代表的な実施例では、第１のデータファイル２７１０は、ＩＭＤＢ（「インターネット映画データベース」）ウェブサイト（http://www.IMDB.com）から検索した特定の映画に関係する情報を保有している。第２のデータファイル２７２０は、Reel.comウェブサイトから得た特定の映画に関する情報を含んでいる。図２７に示す例では、データファイル２７１０には、タイトル「ザ・ボーイズ・オブ・アリゾナ」、ディレクター「ウィルツ」、放映年「１９９７年」、粗筋「素晴らしい映画」が含まれている。同様に、データファイル２７２０では、タイトル「ボーイズ・オブ・アリゾナ」、ディレクター「ボブ・ウィルツ」、放映年「１９９８年」となっているが、粗筋は空欄である。

【0110】

標準データファイル作成処理に際しては、特定のタイプの情報についてのルールが入っているルールファイル２７４０が導入される。図２７の例では、ルールファイル２７４０には映画の属性に関する情報が入っている。ルール２７４０を適用すると、データファイル２７１０とデータファイル２７２０から最も完全なタイトル、即ちここではデータファイル２７１０のタイトル「ザ・ボーイズ・オブ・アリゾナ」、を採用することにより標準データファイルが作成される。ディレクター情報は、データファイル２７２０の方がディレクターの性と名の両方を含んでおりデータファイル２７１０よりも完全であることから、データファイル２７２０から入手される。データファイル２７１０に掲載されている放映年とデータファイル２７２０に掲載されている放映年については矛盾が存在する。以前の情報に基づき、この矛盾は、データファイル２７２０の方が正しい放映年を掲載しているというように解決される。標準データファイル２７３０には、データファイル２７２０の粗筋欄が空欄なので、データファイル２７１０の粗筋を含める。

【0111】

図２７に関連して説明した標準データファイル作成処理では、より完璧且つ正確な情報を備えたファイルが作成でき好都合である。更に、この処理では多数のウェブサイトの情報を互いに比較することが可能になる。更には、標準データファイルの作成処理により、データファイル同士の関連性及びアソシエーション関係が増す。

【0112】

図２８は、ウェブから入手したデータを分離して、データベースに記憶するため当該データを変換する際に実行されるオペレーションの機能説明図２８００を示している。代表的な処理には、データをネットワーク２０から抽出してデータ構造２８１０に入れ、データを配列して編成する段階が含まれている。例えば、交通情報に関するデータを、内容、幹線道路、交差道路、時間、日付、重大度などに関する情報を含むようにインターネットから抽出する。データがデータ構造２８１０に配列され編成されるようにするテキストパターンと記述を含んだルール２８１５を使って、データ構造２８１０を作成・編成する。データ構造２８１０はデータベースのデータファイルに記憶される。データ構造２８１０内のデータは変換され、第１の項代入形式を適用してデータ構造２８２０を作成する。項代入時はルール２８２５を用いてデータ構造２８２０を作成するが、これは変換テーブルの辞書的入力を含んでいる。交通情報の例では、“Ｒｄ”は“ｒｏａｄ（道路）”に、“Ｉ”は“ｉｎｔｅｒｓｔａｔｅ（州間高速自動車道）”に、そして“Ｒｔ”は“ｒｏｕｔｅ（路線）”に、それぞれ変換される。

【0113】

データ構造２８２０に入っているデータは、送られてきたデータに対して属性句文法を適用するルール２８３５に基づいて、データ構造２８３０に、構文解析済みフォームで置かれる。交通情報の例では、東西南北のような「方角」を識別し、「州間高速自動車道」や「高速道」の様な「ハイウェイ識別子」を求める。データ構造２８３０のデータは、次

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に項配列ルール２８４５を用いて、データ構造２８４０に、再配列フォームで入れられる。データ構造２８４０のデータは、第２の項代入形式で扱われて、辞書的変換テーブルからのルール２８５５を適用することによりデータ構造２８５０に入れられる。例えば、“Ｓｔ．”という語は、場所識別子＜ｓｔｒｅｅｔ　ｓｔ．＞又は＜ｃｉｔｙ　ｓｔ．＞に基づいて“ｓｔｒｅｅｔ（ストリート）”又は“ｓａｉｎｔ（セイント）”の何れかと判定される。

【0114】

辞書的変換を行った後、データは、未融合正規化済タグ付フォーマットのデータ構造２８６０に入れられる。データ構造２８６０は、データベース２８５０内にあるのが望ましい。正規化済タグ付フォーマットとは、データを容易に探索し比較できるような均質編成とＨＴＭＬタグを含んでいるフォーマットを指す。ＨＴＭＬタグは、しばしば、データのタイプ、その場所、及びその長さに関する情報を提供する。未融合とは、データが図２５及び２６に関連して説明したフュージョン処理をまだ受けていないことを意味している。

【0115】

図２８に関連して説明したデータ分離処理は、ウェブからデータを取り出し、それをデータベース内の正規化済タグつきフォーマットへと変換するので好都合である。正規化済タグつきデータは、編成、処理、及び融合に備えている。データ分離処理は均質であり、広範なデータソースからのデータを扱うので好都合である。このように、一般的には、本処理は、インターネットソースからデータを入手する段階と、入手したデータで第１のフォーマットを使って第１データファイルを作成する段階と、入手したデータから、特定のインターフェースに関連付けられた第２のフォーマットで表される句を生成する段階を含んでいる。入手したデータを第１及び第２のフォーマットに変換するのには、様々なアプリケーションが利用できる。例えば、テキストパターン、辞書的変換テーブル、属性句文法、及び項配列ルールを使って、入手したデータを均質且つ探索可能なフォーマットに変換し、変換したものをデータベース内のデータファイルにセーブし、次にセーブしたデータをインターフェース特定フォーマットに変換するようにしてもよい。別の実施例では、他のパターン、テーブル、及びデータ処理アプリケーションを使用することもできる。

【0116】

図２９は、データベース１７０から、幾つかのインターフェースプラットフォーム（例えば、ＷＡＰ、ウェブ、電話、ＡＳＲ、ＴＴＦ）を介して音声ポータル１０のユーザーまでの、データの変換を示す機能説明図２９００である。データ構造２８６０に保有されているデータ（図２９にも図示）は、正規化済タグ付データ用の属性句文法を備えたルール２９１５を適用することにより、構文解析済みフォームで、データ構造２９１０内に置かれる。属性句文法は、正規化済タグ付データを取り上げて、識別された属性を含んでいる感知可能な句を作成する。次に、データ構造２９１０からのデータは、辞書的入力変換テーブルを保有しているルール２９２０を使って項代入形式を適用することによりデータ構造２９２０内に配置される。この代表的な実施例では、ルール２９２０の辞書的入力変換テーブルには、特定のインターフェースに対応したデータ出力構造が掲載されている。例えば、“ｒｏｕｔｅ”という語は、ＷＡＰを用いる場合は“Ｒｔ．”に変換され、音声を用いる電話の場合は“Ｒｏｕｔｅ（ルート）”と変換される。同様に、“Ｕ．Ｓ．”という語は、ＷＡＰを用いる場合は“Ｕ．Ｓ．”に変換され、音声を用いる電話の場合は“ユー・エス”と変換される。

【0117】

データ構造２９２０からのデータは、使用出力機器にもよるが、ルール２９３５を適用して項置換えルールを用いることにより、再配列フォームで、データ構造２９３０内へ置かれる。項再配置ルールでは、項をあちこち移動させて個々のユーザーインターフェースに最も適した配置にする。次に、データ構造２９３０内のデータは、句生成文法を備えたルール２９４５を適用することにより文が生成されるデータ構造２９４０に置かれる。例えば、“we have a <severity> traffic incident between <cross location> and <cross location> on <main road>”（＜幹線道路＞の＜交差箇所＞と＜交差箇所＞との間で＜

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重大度＞交通事故発生）という文章が生成される。一旦、データがデータ構造２９４０のフォーマットになると、それは、ＷＡＰ、ウェブ、電話、及びＡＳＲなど各種出力インターフェースに合わせて準備される。

【0118】

図２９に関して説明したデータ変換処理は、データを取り出して多様なユーザーインターフェースに合わせてそれを用意する均質処理であるので好都合といえる。例えば、この処理では、ウェブソースからデータを抽出して、意味論的に識別し、音声インターフェースを介した音声送信に備えることも可能である。同時に、この処理では、同じデータをＷＡＰ機器又はウェブアプリケーションへの送信に合わせて準備することもできる。

【0119】

図３０から３３では、ユーザーと音声ポータル１０との間の代表的対話を例証する数通りの動作経路を示している。ユーザーインターフェース１１０は、図３２及び３３に関連して説明するように、明示的プロンプトを使用して、適切な発言を作り出すようにユーザーを導くことが望ましい。

【0120】

図３０は、代表的なシステムの概要を示すフローチャート３０００であり、音声ポータル１０の各種機能性を表す処理ブロックを含んでいる。ある代表的な実行経路では、ブロック３０１０で、音声ポータル１０は「アメリカンエキスプレス提供のクワックへようこそ」と言ってユーザーに挨拶する。音声ポータル１０は、ユーザーを識別する手段として発信者ＩＤを使用するのが望ましい。ある好適な実施例では、電話番号はデータベース１７０に顧客属性として記憶されている。代わりに、電話番号を顧客データベースに記憶してもよい。音声ポータル１０は、「こんにちは、スティーブ・ウッド。あなたのＰＩＮを声に出すか番号キーで入力してください。スティーブでない場合は、あなたの電話番号を声に出すか番号キーで入力してください。」と続ける。ユーザーはここで「５０８２」と言葉で応答し自分のＰＩＮを教える。認証が済むと、音声ポータル１０はブロック３０２０に進む。ブロック３０２０では、音声ポータル１０は、「ここはクワック・ランウェイです。映画、天気、交通、株式、スポーツ、のリストから興味のあるカテゴリの名前を言って下さい。」と提示する。ユーザーはカテゴリ名で応答するか、「さよなら」と告げる。カテゴリ名が与えられると、音声ポータル１０はブロック３０３０に進む。「さよなら」と言われたら、音声ポータル１０は、素直に終了する。代表的な応答では、ユーザーは「天気」と答えているので音声ポータル１０はブロック３０３０に進む。ブロック３０３０で、音声ポータル１０は「お天気チャンネル提供のお天気コーナーへようこそ。」と言って、ブロック３０４０に進む。ブロック３０４０では、固有イグジスタンツ識別サブシステムが行われる。

【0121】

ブロック３０４０の後ブロック３０５０が実行され、イグジスタンツがブロック３０４０の固有イグジスタンツ識別サブシステムで見つけられたか否かについて判定が行われる。イグジスタンツが見つからなかった場合、制御はブロック３０３０に戻る。イグジスタンツが見つかった場合は、ブロック３０６０が実行され、発見済みイグジスタンツサブシステム（図３３に関連して説明）が実行される。

【0122】

次に、図３１に示すように、ブロック３０４０（図３０）で実行される固有イグジスタンツ識別サブシステムには、データベース１７０が、現在の垂直ドメイン（例、天気、交通、映画）に関し属性従属グラフから属性を提供するブロック３１１０が含まれている。属性従属グラフにそれ以上の属性がない場合には、制御はブロック３１１５に移り、イグジスタンツサーチ失敗が告知される。ブロック３１１５の次に、制御はブロック３０３０（図３０）に移る。ブロック３１１０（図３１）の後ブロック３１２０が実行され、データベース１７０により提供された属性値から属性語彙が構築される。ブロック３１２０を実行した後ブロック３１３０が実行され、音声ポータル１０は、方法Ｎに従い自動音声認識（ＡＳＲ）技術を使って、属性値プロンプトに対するユーザーの応答を捕捉する。例え

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ば、音声ポータル１０は、ユーザーの場所を郵便番号、即ち１つの代表的な方法Ｎ、により応答するよう要求する。ユーザーは自分の郵便番号例えば「５３０４５」を与えることによって応答する。

【0123】

ブロック３１４０では、音声認識が成功したか否かについて判定がなされる。成功でない場合は、フォールバック方法Ｎ＋１に従ってＡＳＲでブロック３１３０が実行される。例えば。天気の垂直ドメインでは、フォールバック方法Ｎ＋１は、ユーザーがいる州及び都市を尋ねることが考えられる。好適な実施例では、このフォールバック方法には。リストから属性を選択する段階と、区画スペースにより設定された属性値を制約する段階（例えば、州名を入手してから都市名を入手するなど）と、属性値を綴る段階が含まれている。音声認識が成功した場合は。ブロック３１５０が実行され、音声ポータル１０は、補足した属性でデータベース１７０を探索する。ブロック３１５０を行った後、フローチャート３２００（図３２）が実行される。

【0124】

次に図３２は、固有イグジスタンツ識別サブシステムの一部を示すフローチャート３２００である。ブロック３１５０を実行した（図３１）後、ブロック３２１０が実行され、データベース１７０の探索結果からマッチしたイグジスタンツの数が求められる。製品データベースの探索により見つかったマッチの数によって別々の行動が起こされる。マッチが見つからない場合、ブロック３２２０が実行され、複合ユニークキーを探すか否かについて決定が下される。データベース１７０内には保有されていないがインターネット上で所望のアイテムを見つけるのに使うことのできるユニークキー又は識別子が１つ又はそれ以上ある場合は、複合ユニークキーが存在するかもしれない。

【0125】

１つのマッチが発見された場合、ブロック３２３０が実行され、音声ポータル１０はそのマッチが正しいイグジスタンツか否かを検証する。マッチの数が１つよりは多いがリストの最大数よりも少ない場合、ブロック３２４０が実行され、ユーザーはマッチのリストからイグジスタンツを識別するように要求される。リスト内の可能なエンティティの最大数よりもマッチの数が多い場合、ブロック３２５０が実行され、属性が「拡張可能」であるか否か判定される。換言すれば、属性について情報がもっと提供できるか否かについて判定される。これ以上情報が提供できない場合は、制御はブロック３１１０（図３１）に戻り、属性従属グラフから別の属性を入手する。属性が拡張可能である場合、ブロック３２５０が実行され、属性の拡張が試みられる。属性が拡張できれば、制御はブロック３１２０（図３１）に移り、語彙セットが構築され、ＡＲＳ技術及び方法を使って属性値が入手される。属性の拡張ができない場合、制御はブロック３１１０（図３１）に移り、属性従属グラフから別の属性を入手する。属性の拡張の結果がアイテムリストとなれば、制御はブロック２４０に移る。

【0126】

以下、ブロック３２２０で実行される問い合わせについて説明するが、ＷＷＷ探索に使用する複合ユニークキーがないと判断された場合、制御はブロック３１１０（図３１）に移る。複合ユニークキーが存在するかもしれないと判断されると、制御はブロック３２７０に移り、ＷＷＷを探索するか否かを決める。ＷＷＷを探索しない場合、制御は現在の垂直ドメインの最上位であるブロック３０３０（図３０）に移る。ＷＷＷを探索する場合、制御はブロック３２８０に移る。次にブロック３２３０及びブロック３２４０について説明すると、正しいイグジスタンツが見つかった、又は正しいイグジスタンツがリストから見つかった場合，制御はブロック３２８０に移る。ブロック３２３０又は３２４０で正しいイグジスタンツが見つからなかった場合、制御は、アイテムを見つけるために探索できる複合ユニークキーがあるかどうかを判定するためブロック３２２０に移る。ブロック３２８０では、ウェブルックアップが行われる。この時点で、顧客には長さが様々な目標広告が提示されることになる。広告については図３６に関連して詳しく説明する。ブロック３２８０の間に、ブロック３０６０が実行され、発見済みイグジスタンツサブシステムが

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実行される。

【0127】

図３３に示すように、発見済みイグジスタンツサブシステムは、顧客データベースに発見時間のログを行うブロック３３１０を含んでいる。ある好適な実施例では、顧客データベースはデータベース１７０に含まれている。ブロック３３１０の後ブロック３３２０が実行され、データベース１７０の情報から垂直ドメインに適切なものとして提示するために情報が準備される。ブロック３３２０の後ブロック３３３０が実行され、関係する情報とコマンド文法が構築される。例えば、映画の垂直ドメインでは、特定の劇場で公開されている映画のリストを流す場合、その文法には、ユーザーが特定の映画について更に情報を求めることができるように映画のタイトルが含まれる。

【0128】

ブロック３３４０では、情報がユーザーから戻される。好適な実施例では、考えられる受け入れ可能なコマンドには、より詳細な情報を聞き、特定のソースから情報を聞き、関係情報（例えば、より安価、より好都合）を聞き、垂直ドメインに対して適切な行動をとる（例えば、ビット上げる、場所を変える）ためのコマンドが含まれる。ブロック３３４０の後ブロック３３５０が実行され、次のアクティビティが得られる。新しい垂直ドメインを所望する場合、制御はブロック３０２０（図３０）に移る。現在の垂直ドメインの一番上から新たに選択したほうが望ましい場合、制御はブロック３０３０（図３０）に移る。新しいイグジスタンツを所望する場合、制御はブロック３０４０（図３０）に移る。

【0129】

図３２に戻るが、ブロック３２８０の後ブロック３２９０が実行され、ウェブルックアップの結果が、データベース１７０を更新することにより調整される。ブロック３２９０でウェブ結果を調整中、ブロック３２９５でスマートディレイハンドルを実行し、広告又は遅延を処理する別のフォームを実行してもよい。ブロック３２９５のスマートディレイハンドルは、顧客データベース及び広告データベースからの情報を使う。ある好適な実施例では、顧客データベース及び広告データベースは、データベース１７０のサブセットである。別の実施例では、顧客データベース及び広告データベースは物理的に別個のデータベースである。

【0130】

作動中、ここで説明したインターネットベースの情報に音声アクセスするシステム及び方法は、顧客の関心がある垂直ドメイン（例えば、映画、買い物）を識別し、次に垂直ドメイン中の考えられる全ての範囲から顧客が求める１つのもの又は１つのセットにまでユーザー応答を「絞り込む」ことができ好都合である。垂直ドメイン内のこの絞込みには、特定のアイテムに絞り込むための事前に定義づけられた「経路」セットに従って、製品又はサービスの属性について、ユーザーにシステム主導型質問を実施することが含まれる。経路は、突き止められ例示されるべき製品についての制約を順序付ける形で定義されている。

【0131】

図３４は、音声ポータル１０がユーザーの応答を絞り込んで、ユーザー応答への音声認識の正確性を上げることのできる絞込み処理のフローチャート３４００を示している。ステップ３４１０で、ユーザーは音声ポータル１０を呼び出す。ステップ３４１０の後ステップ３４１５が実行され、上記の様々な方法を使って発信人が識別される。ステップ３４１５の後ステップ３４２０が実行され、ユーザーは興味のある垂直ドメインを選択する。ステップ３４２５が次に実行され、選択された関心対象の垂直ドメインに対する属性絞込み特性が開始される。ステップ３４２５の後ステップ３４３０が実行され、音声ポータル１０は、関心対象の垂直ドメイン内にユーザーの嗜好のものがあるかどうかを判定する。嗜好のものが存在しユーザーがオーバーライドしたくない場合には、制御はステップ３４６０に移り、ユーザーの嗜好に基づいて見つけられたアイテム又はサービスが表示される。

【0132】

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嗜好のものが入手できないか又はユーザーが自分の嗜好をオーバーライドする場合、ステップ３４３５が実行され、属性語彙セットが構築される。語彙セットは、関心対象の垂直ドメイン内のこの時点でのユーザー応答の音声認識に音声ポータル１０が使用できる可能な応答の数を限定できるようにするので好都合である。定義された語彙セットを用いれば、音声ポータル１０は、従来の音声施認識技術を高認識率で実現できるので好都合である。例えば、ユーザーがメジャーリーグベースボール（ＭＬＢ）チームを選択し、ＭＢＬチームに関して要求される可能性のある語彙セットが構築された後では、「ブリュワーズ」という語の認識は容易になるはずである。このような語彙セットは、同じ情報についてユーザーが入力する多種多様なユーザー入力のタイプを含んでいる。例えば、ＭＬＢチームの例では、語彙セットは、ＭＬＢチームに関連する全ての都市名又は州名並びにＭＬＢチームのマスコットまでも含んでいる。従って、「ミルウォーキー」及び「ブリュワーズ」は両方ともＭＬＢチームの語彙セットの一部である。

【0133】

適切な語彙セットが構築された後、ステップ３４４０が実行され、音声ポータル１０は属性に関して問い合わせをする。例えば、「どのメジャーリーグベースボールチームについて聞きたいですか？」と問い合わせる。ステップ３４４０の後ステップ３４４５が実行され、属性が識別される。属性が識別できない場合、ステップ３４４７が実行され、属性の識別のためにフォールバック処理が実施される。ステップ３４５０では、音声ポータル１０は、「終了状態」に到ったか、或いはアテム又はサービスを発見した時点であるかを判定する。「終了状態」に到っていない場合、ステップ３４５５が実行され、次の属性にアクセスして、制御はステップ３４３０に戻る。このベースボールの例では、チーム名だけでは終了状態には至っていない。最近の試合結果、選手統計、チームの地位、又は他の関係情報というような他の「より狭義の」属性が要求されるはずである。ステップ３４６０が実行されてしまうと、ステップ３４６５が実行され、見つかったアイテム又はサービスがユーザーに報告される。

【0134】

ある代表的実施例では、ユーザーは次のようにアイテムを選択する。ユーザーは、最初に関心のドメイン（例えば、電子商取引、交通情報、天気予報、映画など）を指定する。次にユーザーは、１つのアイテム（例えば、本、おもちゃ、交通情報の場合は関心のある路線、天気予報の場合は関心のある都市など）を、アイテムの属性を指定することにより選定する。次にユーザーには、アイテムのドメイン（例えば、製品、交通、天気、映画など）に適切な、識別されたアイテムについての詳細な情報が提供される。例えば、電子商取引ドメインが関心対象の場合、値段、発送費用、入手可能性などを含むベンダー情報が入手可能である。関心が映画ドメインである場合は、要覧、プロデューサー、及び配役が提供される。関心がオークションドメインである場合には、目立った競り値を知ることができる。

【0135】

ユーザーは、場所を識別するための多様な方法（例えば、郵便番号、町名、都市区分、「ボストン北部、西部など」）を使って場所（例えば、識別された製品の場合は一番近いベンダー、映画の場合は一番近い映画館）によって情報を要求でき好都合である。ある代表的実施例では、郵便番号中心に場所を識別する戦略を使用しており、近郊の名前をたずね、都市名又は州名にまでさかのぼり、その後再度ズームインする手法をとっている。ある代表的実施例では、ユーザーは、要求すれば情報が最後に更新された日付と時刻を入手できる。ユーザーに提示されたデータは全て、当該ドメインに対して現時点で適切であることが望ましい。ユーザーは、「純粋な」ソース情報（ＸＸＸＸ提供）又は唯一の情報源からの情報の場合には情報源を通知される。ある好適な実施例では、「ヘルプ」又は「インストラクション」オプションがどの選択時点でも利用できる。

【0136】

ユーザーは、ドメインに適切な場合、アイテム属性に基づいてアイテム比較を要求してもよい。ユーザーは、ドメインに適切な場合、「より好都合な」「より安価な」「関係す

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る」アイテムの識別を要求してもよい。関心対象のドメインに適切な場合、ユーザーは、ユーザーが識別した多数のリストにアイテムを明示的に記録してもよく好都合である。ユーザーは自分のリストからアイテムを検討してもよい。ユーザーは、自分のリスト上のアイテムへの、情報変更（ドメインに適切な）の電話又はＥメールによる通知を要求してもよい。

【0137】

図３５は、音声ポータル１０を使って取引を実行する代表的なプロセスのフローチャート３５００を示している。ステップ３５１０で、ユーザーは（電話又は呼び出し）音声ポータル１０にアクセスする。ステップ３５１０の後ステップ３５１５が実行され、ユーザーが所望するアイテム又はサービスを識別するために絞込み処理が実行される。このような絞込み処理では、フローチャート３４００に示し且つ図３４に関連して説明したオペレーションが行われる。

【0138】

ステップ３５１５の後ステップ３５２０が実行され、音声ポータル１０は、識別されたアイテム又はサービスに望ましく且つ関係する取引を指定するようユーザーに要求する。ステップ３５２０の後ステップ３５２５が実行され、音声ポータル１０は、指定された取引を実行するのに適切な音声ポータルルールを識別する。ステップ３５２５の後ステップ３５３０が実行され、ルールを実行して指定された取引が実行される。取引には、アイテム又はサービスを購入すること、オークションで競り値をつけること、或いはインターネット上で可能な他の何らかのタイプの取引が挙げられる。ステップ３５３０の後ステップ３５３５が実行され、音声ポータル１０は取引の結果を記録する。結果はデータベース１７０に記録されるのが望ましい。ステップ３５３５の後ステップ３５４０が実行され、取引がユーザーに報告される。

【0139】

異なる取引（例えば、競売する、見る、買う、追跡する）は別々のドメインに適切である。例えば、関心対象が電子商取引である場合には、ユーザーは選定したベンダーから識別した製品を注文することになる。更に、ユーザーは、後で購入する場合に備えてショッピングカートにアイテムを追加してもよい。ユーザーは、注文時に、請求先のクレジットカード及び届け先住所を（ユーザープロフィールから又は手動で）指定することになる。ユーザーは、これまでに注文した製品の状況情報を要求することもできる。別の例では、関心対象がオークションの垂直ドメインである場合、ユーザーは、現在の競り値を上げてもよいし、新しいオークションで競り値をつけてもよい。

【0140】

音声ポータル１０を使って取引を実行する処理では、ユーザーがコンピュータ上で手動操作をする必要がないので好都合である。ユーザーは、マウスをクリックしなくても、コンピュータキーボード上でキーを押さなくとも、或いは他のどんなコンピュータインターフェース手動操作（例：マウスクリック、キーボード入力）をしなくても、アイテムを購入し、入札に参加し、或いは他のインターネット取引を行うことができる。このように、図３５に関連して説明したプロセスは、「ノークリック」インターネット取引プロセスで行える。ユーザーは、電話のタッチパッドを利用して「ノークリック」インターネット取引を行うこともできる。

【0141】

図３６Ａは、音声ポータル１０を使った広告の代表的なプロセスのフローチャート３６００Ａを示す。広告サブシステム１２０は、特定ユーザーに流す広告を決める方法を含んでおり好都合である。一般的に、この方法は、ユーザー人口統計学、場所人口統計学、及び現在の関心対象ドメインなど、コンテキストに基づいて選択制約を設定することを含んでいる。選択制約が設定されると、本方法では、その制約に基づいて広告データベースに問い合わせを行い、可能な広告のリストを検索する。可能な広告のリストは、各広告の販売基準に基づいて再注文される。広告は再注文されたリストから選択されユーザーに提示される。

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【0142】
フローチャート３６００Ａに示すように、ステップ３６１０Ａでは、音声ポータル１０の広告サブシステム１２０は、ユーザーに提示される広告の選択制約を設定する。ある実施例では、選択制約は、ユーザー人口統計学、場所人口統計学及び（仮に、あれば）現在選択されている関心対象の垂直ドメインなどのユーザー中心情報、並びに広告販売基準、反復無し及び他の広告有効性要素などの広告中心情報に基づいている。紹介スポンサー広告、垂直スポンサー広告、及び商業広告など、多種多様な広告のタイプから選択する際には、このような制約又は判断基準が使用される。ステップ３６１０Ａの後ステップ３６１５Ａが実行され、ステップ３６１０Ａで選択された制約を基に可能な広告のリストを求めてデータベース１７０に問い合わせが行われる。

【0143】
ステップ３６１５Ａの後ステップ３６２０Ａが実行され、可能な広告のリストが、販売基準要素に基づいて再注文される。ある実施例では、販売基準は、以下の事柄、即ち（１）当広告については引渡し率が達成されつつあるか？、（２）当広告については最小目標引渡し率は達成されたか？、を判定するために使用される。販売基準を使って、各広告顧客がそれぞれに満たされるべき引渡し要件を持っていることを確認できるので好都合ある。ある実施例では、最初に引渡されるべき広告に優先順位をつけるために比率が計算される。

【0144】
以下に、どのように広告を注文するかについての判断要素として比率を使った例を示す。広告Ｘは契約上１００，０００件の引渡しを要する。音声ポータル１０は、広告Ｘのインスタンスを既に７，０００件引渡し済みである。契約開始は５月１０日で、契約終了は７月７日である。現在の日付は５月１５日であると仮定する。よって代表的比率は以下のように求められる。

【0145】
・契約開始から数えた日数＝５
・契約期間＝２７日
・広告を流すことが必要とされる日数＝２２日
・既に流された広告の割合＝７，０００／１００，０００～＝７％
・既に流された日数の割合＝５／２７～＝１８．５％
以上のことから、代表的最終比率は：
（既に流された日数の割合－既に流された広告の割合）／残りの契約日数、となる。

【0146】
この比率は間もなく流されるはずの広告を考慮に入れており（小さい方の分母－＞大きい方の比率）、既に流されたの広告の喰い違いは、低い比率でプッシュバックされており好都合である。

【0147】
可能な広告のリストが再注文されるステップ３６２０Ａの次に、広告が選択されるステップ３６２５Ａが実行される。ある実施例では、広告は、可能な広告のリストの中で利用できる最も高い比率に基づいて選ばれる。ステップ３６２５Ａの後、提示されるべき広告のタイプによって異なる動作が起きる。ステップ３６３０Ａでは、利用できる広告がない場合、及び広告タイプが紹介スポンサー広告である場合には、ステップ３６３５Ａで例外が起きる。そうでなければ、ステップ３６４０Ａが実行され、広告が利用できるか否かについて決定を下す。利用できる広告がある場合は、ステップ３６４５Ａが実行され、広告が流される。利用可能な広告がなければ、ステップ３６４０Ａが実行され、選択制約がリセットされ、制御はステップ３６２０Ａに戻る。

【0148】
このように、広告のタイプ毎に処理段階に差があるが、広告の種類として、紹介スポンサー広告、垂直スポンサー広告、及び商業広告の３種類がある。以下、紹介スポンサー広告を選択する場合の代表的プロセスを示す。

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１、紹介スポンサー広告タイプに対して、場所に基づいて選択制約を設定する（垂直は該当しないので使用しない）。
２．制約に基づいてデータベースに問い合わせを行い、結果を、流せる広告のリストに変換する。
３．販売基準に基づいてリストを再注文する。
４．リストから比率が最も高い広告を選択する。データベース内には広告が存在するはずであり、そうでなければ例外が発生する。

【0149】

以下に、垂直スポンサー広告を選択する場合の代表的プロセスを示す。
１．ユーザー人口統計学、場所人口統計学、垂直スポンサー広告タイプの垂直タイプに基づいて制約を設定する。
２．制約に基づいてデータベースに問い合わせを行い、結果を、流せる広告のリストに変換する。
３．販売基準に基づいてリストを再注文する。
４．広告が利用可能であればリストから比率が最も高い広告を選択し、ユーザーインターフェースに戻す。
５．利用できるものがない場合には、垂直タイプだけに基づいて選択制約をリセットし、クアック促進にだけつながる垂直スポンサーのタイプをセットする。
６．販売基準に基づいてリストを再注文する。
７．広告が利用可能であればリストから比率が最も高い広告を選択し、ユーザーインターフェースに戻す。
８、ユーザーがリストから全ての広告を聞いた場合には、最後にユーザーに対して流された広告を戻す。何らかの理由でリストが空で利用できる広告がない場合には、例外が発生する。

【0150】

以下に、商業広告を選択する場合の代表的プロセスを示す。
１、場所人口統計学、顧客人口統計学、及び商業広告タイプの垂直タイプに基づいて選択制約を設定する。
２、制約に基づいてデータベースに問い合わせを行い、結果を、流せる広告のリストに変換する。
３．販売基準に基づいてリストを再注文する。
４．広告が利用可能であればリストから比率が最も高い広告を選択し、ユーザーインターフェースに戻す。
５、利用できるものがない場合、垂直タイプだけに基づいて選択制約をリセットし、クアック（即ち、音声ポータルシステム）コマーシャル又は有料コマーシャル（入力タイプには無関係）の何れかにコマーシャルのタイプをセットする。
６．販売基準に基づいてリストを再注文する。
７．広告が利用可能であればリストから比率が最も高い広告を選択し、ユーザーインターフェースに戻す。
８、ユーザーがリストから全ての広告を聞いた場合には、最後の広告を戻す。何らかの理由でリストが空で利用できる広告がない場合は、例外が発生する。

【0151】

図３６Ｂは、音声ポータル１０を使った広告の第２の代表的なプロセスのフローチャート３６００Ｂを示す。ステップ３６１０Ｂで、ユーザーは音声ポータル１０にアクセス（電話又は呼び出し）する。ステップ３６１０Ｂの後ステップ３６１５Ｂが実行され、ユーザールックアップを行いユーザーを識別する。様々な方法で発信者識別が実施されるが、そのうちの数例を図２及び図３０に関連して説明している。ステップ３６１５Ｂの後ステップ３６２０Ｂでは、音声ポータル１０にとってそのユーザーが既知であるか否かの判定がなされる。ユーザーが知られていない場合、ステップ３６２５Ｂが実行され、そのユーザーにデフォルトプロフィールが使用される。ある代表的実施例では、ある種の広告につ

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いては、デフォルトプロフィールはユーザー制約又は制限を含んでいない。デフォルトプロフィールは、例えば、ユーザーのエリアコード、呼び出しの日時、曜日など、呼び出しについて分かっているある特定のパラメータに連動する。ユーザーが既知である場合、若しくはステップ３６２５Ｂが実行された後、ステップ３６３０Ｂが実行され、広告サブシステム１２０は、現在のユーザーに特定のユーザー制約を含めインターフェース（例：音声、ＷＡＰ、ＷＷＷ）のタイプに基づいて広告のセット“Ｓ”を生成する。

【0152】

現在の作動コンテキスト（例：特定ユーザー、関心対象の垂直ドメイン）が与えられると、ステップ３６３５Ｂで、広告サブシステム１２０は広告コンテキストに基づいて広告セットＳに重み付けする。ステップ３６３５Ｂの後ステップ３６４０Ｂが実行され、ユーザーが最も欲しいものを正確に知るのに十分なコンテキストであるか否かが判定される。コンテキストが十分でない場合、ステップ３６４５Ｂが実行され、入手された部分的コンテキストに基づいて広告がピックアップされる。コンテキストが十分である場合、ステップ３６５０Ｂが実行され、最もふさわしい広告が流される。

【0153】

広告サブシステム１２０は、初期の一般的広告又はスポンサーメッセージを全発信者に提供し、好都合である。広告サブシステム１２０は、ドメインに適した効用関数に基づいて選ばれた、的を絞った音声広告もユーザーに提供する。ある代表的実施例では、効用関数は、広告対象の製品又はサービスの入手可能性、現在のアイテムの関係性（例えば、ＤＶＤならテレビに関係がある）、ユーザーに対する関連性（例えば、人口統計学による）、ユーザーの広告主への好ましさ、及びサービスプロバイダに対する価値（例えば、費用／利益に基づく）に関係がある。広告サブシステム１２０は、ある一定数の広告をある一定の時間枠内でユーザーに引き渡すことができるので好都合である。更に、広告サブシステム１２０は、無線アプリケーションプロトコル（ＷＡＰ）、ＷＷＷ及び音声インターフェースなど異なるプラットフォームを通して広告を引き渡すことが可能である。

【0154】

音声インターフェースプラットフォームを例に取ると、最初の１分間で１つのスポンサー広告と１つの的を絞った広告がユーザーに流される。次の４０秒以内に２番目に的を絞った広告が引き渡される。ある実施例では、スポンサーメッセージは３－５秒間で処理され、次に的を絞った広告が１０－２０秒間を使う。

【0155】

この構造の実施は、システムに入ったら紹介スポンサー広告が提示されるという事実に基づいている。ユーザーは垂直に入る都度、「垂直スポンサー」に促される。ユーザーが要求するデータを受信しようとすれば、コマーシャル全編がユーザーに提示される。このモデルは、これまでに掲載されたスケジュールを、ユーザーが受信まで４０秒かけて自分の情報を探索するものと見積もった上で概算しており、好都合である。

【0156】

広告コンテキストでは、広告が提示された際により詳細な情報を引き渡すには「スピークスルー」が必要である。スピークスルーは、音声インターフェースだけでなくＷＡＰやＷＷＷの両方にも適用できるので好都合である。ＷＡＰの場合は、音声及びテキストはスピークスルーと見なされ、一方、広告についてより深く知るためのバナー上のクリックは、ＷＷＷ上のスピークスルーとなる。音声対話でのスピークスルーのある実施例は、顧客にウェブサイトアドレス又は電話番号を指し示すものである。別の実施例では、スピークスルーはＥメールアドレス又は顧客電話番号を収集して広告主に提供し、顧客に、より関連性の高い情報を送るようにしている。ＷＷＷインタフェースでは、スピークスルーは、顧客情報を管理し監査するのに外部ソースを利用することを含んでいる。広告サブシステム１２０は、更に、ドメイン（例えば、ＷＷＷインタフェース）に適した効率関数に基づいて選択された、的を絞った「バナー」広告をユーザーに提供する。

【0157】

広告サブシステム１２０の広告引渡しの管理は、幾つかの要素の組合せに基づいている

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。ある代表的実施例では、広告は３つの場面のうちの１場面で引き渡される。第１に、広告は、ユーザーがシステムに入って新しいセッションを開始しようとしているときに引き渡される。このスポンサーメッセージはユーザーインターフェース１１０即ち「システム音声」内で流れ、数個の別の広告スポンサーの中でローテーションされる。例えば、スポンサーメッセージとしては「クアックは、ウェブの通貨「ビザ」の提供でお送りします」又は「クワックはセルラサービスをリードするスプリントＰＣＳの提供でお送りします」などである。

【0158】

第２に、ユーザーが、映画、交通、又は天気など、システムのある特定の垂直にアクセスする直前に、別のスポンサー広告（垂直スポンサー広告）が引き渡される。例えば、このような広告としては、「映画情報の世界的権威ＩＭＤＢがお届けします」や「ＬＣＥソニーメトレオンは、ボストンで誰もが納得する素晴らしい映画セレクションをお届けします」などがある。

【0159】

第３に、ユーザーが精選された要求を受け取る直前に広告が引き渡される。この種の広告は「コマーシャル」と定義される。このような広告はタイムリーではある（即ち選定された時点で引き渡される）が、２分毎といったように非常に頻繁に流れる。システム音声は、ユーザーに対して役に立ちそうな付加価値のあるコンテキストを指摘するので都合がよい。例えば、ユーザーが特定の劇場の映画を選択している場合には、近くのレストランを提案する。非スピークスルー広告が可能ではあるが、ここではスピークスルー広告を使うのが望ましい。広告内容自体は長さが約７秒であるのが望ましい。スピークスルー広告は、出来る限り最高品質であり（即ち、専門的に製作されたもの）、長さは大体１５から２０秒であるのが望ましい。例えば、ユーザーが、ＬＣＥソニーメトレオンで映画として「アメリカンビューティー」を選択する場合、システム音声は、「ソニーメトレオンのリストを見ています。ソニーメトレオンからたった５分のボストン最高のイタリア料理店「トニーズ・マトリシアーナ」について聞きたければ、「トニーズ！」と言って下さい、でなければリスト提示を維持して下さい。」と言う。ユーザーはここで自動的に予約を入れることになる。他の関係性属性を、的を絞った広告を行うために使ってもよい。垂直指定要求をすることは広告の引渡しに時間がかかるという現在の仮定のためこれら別々のスポットで広告が引き渡されるので、好都合である。

【0160】

これらの問題に加えて、どの広告をユーザーの元に届けるべきかの決定が行われる。この決定に組み入れられる要素としては、呼び出しの長さ、どんなタイプの垂直コンテンツが要求されるか、コンテンツとユーザープロフィール（及び／又は場所）の組合せ（即ち、レストランの広告は顧客の地元であるべき）、可能収益、発信人が要求する特定の情報、及びユーザーがその広告を既に耳にしているかどうか、などがある。ある代表的実施例では、広告は以下の要素に基づいてローテーションされる。即ち、当該広告が最後に流されたのは何時か。今回の呼び出し前にユーザーが当該広告を最後に耳にしたのは何時か。ユーザーは今回の呼び出しで既に当該広告を聞いたか。当広告について広告引渡し率は達成されつつあるか。最小引渡し目標は当広告では達成されたか。

【0161】

広告は、提示が特定の顧客にとって適当で、請求料金に則ったやり方で引き渡されるので好都合である。こうして、当該広告は何度流されたか、及び各ユーザーは当該広告を何度聞いたかなど、ある一定の基本データを集めて各広告を管理する。

【0162】

また、このような基本的なデータが与えられると、以下の更に複雑な問い合わせが可能になる。例えば、問い合わせには、定義された各種グループ、即ち、名前、人口統計学的情報、場所、及び関係性情報（これらユーザーが他に要求したもの）のグループの中の広告を聞いたことのある全ユーザーの報告書を作成する能力が含まれている。問い合わせには、スピークスルー情報を要求したことのあるユーザー全ての報告書を作成する能力も含

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まれる。

【0163】

音声ポータル１０では他のモード時には可能であるバージ・イン能力（即ち広告の上演を停止すること）を広告提示中は除外することができる。バージ・インを防止する能力は、音声ポータル１０を介して与えられた広告に関連して入手されているデータを広告主が確信しなければならない点で重要である。ある実施例では、広告用データの収集は第３者監査人により行われる。

【0164】

広告サブシステム１２０は、ユーザーに提供された全広告の記録を、成功（即ち完遂した）及び不成功（即ち不完全な）の引渡しを含めて全て保持している。この記録はデータベース１７０に記憶されるのが望ましい。広告は、関心対象の垂直ドメイン、又は発信人住所即ちユーザー、又はユーザーの嗜好、又はユーザーの過去の関心により、或いは広告主の利益とユーザーが収集した情報の何か別の組合せにより的を絞られ、好都合である。

【0165】

コンテキストに敏感な情報の使用は、ユーザーに対して広告の目標範囲を絞るのに利用できるので好都合である。音声ポータル１０でのコンテキストに敏感な広告の的絞りは、広告コマーシャルとユーザーが受信するほぼ正確な情報とを関係付ける。この機能を正しくするために、広告が流される直前に適当なポインタが選択アルゴリズムに送り込まれる。ある実施例では、垂直タイプがコンテキストポインタである。

【0166】

別の実施例では、イグジスタンツはより具体的な目標設定を許容するコンテキストポインタである。このコンテキストポインタは、その属性基準を市場調査基準と突き合わせて、ある特定のカテゴリーの重み付けを決定する。これらカテゴリー重み付けを初期リスト中の広告の販売基準と組み合わせてコンテキスト重み付けの順位を定義し、そこから最良の広告を選択するようにしている。人口統計学及び垂直タイプから作成されたこの初期リストはコンテキスト重み付けの基礎となる。算術的な表記法を導入してこの問題をアルゴリズムに組立てた場合の一例を以下に示す。

【0167】

第１に、関係するパラメータに対して変数を定義する。アルゴリズムに送り込まれるイグジスタンツの属性のリストは、セット$\{e_1, e_2, \ldots, e_m\}$により定義されるものとし、ここにmはイグジスタンツ内の属性の個数である。例えば、映画イグジスタンツについては、サンプル属性は、ジャンル、場所、及び放映時間である。広告と結びつけるのに利用できるカテゴリーのリストは、セット$\{C_1, C_2, \ldots, C_n\}$により定義され、ここにnはカテゴリーの総数である。システム内のサンプルカテゴリーとして幾つか例を示すと、家族、レストラン、ナイトライフ、映画、及び娯楽などがある。コンテキストカテゴリーには各カテゴリーC_iに対し重みW_iがあるとし、ここに$i \in \{1, \ldots, n\}$である。コンテキストカテゴリー加重を設ける目的は、広告カテゴリー加重に比べたコンテキストの強度を判断するためであり、これについては以下に説明する。

【0168】

全イグジスタンツに対する市場調査基準を$P = \{p_1, p_2, \ldots, p_t\}$により表し、ここにtはデータベース内の全ての基準の合計である。各基準p_jには対応付けられた重みw_jがあり、ここに$j \in \{1, \ldots, t\}$であり、全てのi、jに対し各属性e_iは全p_jを満たそうとするものであり、ここに$i \in \{1, \ldots, m\}$、$j \in \{1, \ldots, t\}$である。こうして、e_iがp_jを満たし、p_jがカテゴリーC_kに属するのであれば、$W_k = W_k + w_j$となり、ここに$i \in \{1, \ldots, m\}$、$j \in \{1, \ldots, t\}$、$k \in \{1, \ldots, n\}$である。この反復法を使って、各カテゴリーの上記コンテキスト加重を定義する。

【0169】

各カテゴリーに対し、合計コンテキスト加重W_kが定義されると、付随する強度比率R_kが計算できるはずである。カテゴリーの強度比率を使用すれば、イグジスタンツのコンテ

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キストが広告の選択に値するほどに強力であるかどうかが判定できる。例えば，家族というカテゴリーがPに多くの基準を有している場合、イグジスタンツのコンテキストに対応する重みが受け入れ可能な割合内にあるかを確かめたいと思う。よって、$R_k=W_k/T_k$であり、ここにT_kはカテゴリーｋに関係するＰ内の全基準の加重合計である。

【0170】

人口統計学的問い合わせにより生成された広告のリストは、セットＡ＝｛A_1，A_2，．．．，A_r｝により定義され、ここにｒはリスト内の広告の総数である。各広告A_iは自身のカテゴリー重みx_kを有し、ここにｉ∈｛１，．．．．，ｒ｝及びｋ∈｛１，．．．．，ｎ｝で、コンテキストカテゴリー加重比R_kに対応しているアルゴリズムに結び付けて使用される。

【0171】

こうして、データベース上で人口統計学と広告タイプによりフィルタリングすることにより広告Ａの初期リストが一旦作成されると、アルゴリズム内のステップは以下のようになる。

１．各カテゴリーＣｋに対しカテゴリー重みW_kを次のように設定する。

・各$W_k=0$に初期化し、ここにｋ∈｛１，．．．．，ｎ｝

・各ｉ∈｛１，．．．．ｎ｝及び各ｊ∈｛１，．．．．，ｔ｝に対し、イグジスタンツの現在の属性｛e_1，e_2，．．．．e_m｝に基づいて、e_iがp_jを満たし、p_jがカテゴリーC_kに対応付けられている場合、$W_k=W_k+w_j$、ここにｋ∈｛１，．．．．ｎ｝である。

２．次にイグジスタンツの属性とは別にカテゴリーの合計加重を表にする。合計加重より，各カテゴリーのコンテキスト比を確立する。

・各ｋ∈｛１，．．．，ｎ｝及び各ｊ∈｛１，．．．．，ｔ｝に対し、p_jがカテゴリーC_kに対応付けられている場合、$T_k=T_k+w_j$。コンテキストカテゴリーコンテキスト比を$R_k=W_k/T_k$と設定する。

３．各カテゴリーｋに対し、各R_kに各広告Ａｉのカテゴリー加重x_kを掛け、次にその合計に広告S^iの販売基準比を掛け、コンテキスト合計G_iを得る。

・各ｉ∈｛１，．．．．，ｒ｝に対しG_iを計算し、ここに

$$G_i=S_i\cdot(R_1x_1+\ldots+R^nx_n)$$

である。

４．広告A_iを選択し、ここにｉは$max(G_i)$、ｉ∈｛１，．．．．，ｒ｝により定義される。

【0172】

上記アルゴリズムをサンプル例により説明する。ユーザーが、関心対象の映画の垂直ドメインで音声ポータル１０のサービスを使用している例を考察する。垂直スポンサー広告が流され、ユーザーは映画表示に関する情報を正に受信するところである。こうしてコンテキストとして、選択肢には、特定のイグジスタンツを流すためのポインタが含まれており、それは引数のための「ミッション・トゥー・マース」である。映画表示イグジスタンツの属性のうち幾つかは格付け（例えば、Ｒ）、ジャンル（例えば、スリラー）、及び放映時間（例えば、４：００ｐｍ）などであり、｛e_1，e_2，e_3｝により表すことができる。そこで、要素Ｐ＝｛p_1，p_2，．．．．，p_t｝を含んでいるマッチングコンテキスト基準のリストが必要となる。基準のサンプルリストはデータベース内で下表のように表される。

【0173】

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【表1】

属性	マッチタイプ	値	カテゴリー	重み
映画	--	--	娯楽	１０
映画格付け	=	G	家族	８０
映画格付け	=	R	ナイトライフ	５０
映画ジャンル	=	サスペンス	１０代	４０
映画ジャンル	=	サスペンス	アダルト	５０
映画ジャンル	=	スリラー	１０代	８０
映画放映時刻	>	７：００ＰＭ	１０代	８０
映画放映時刻	<	４：００ＰＭ	家族	７０

【0174】
この表から、カテゴリーはC_i＝｛娯楽、家族、ナイトライフ、１０代、アダルト｝として推断され、ここにk＝５である。よって、ステップ1から、W_1＝１０、W_2＝０、W_3＝５０、W_4＝８０、W_5＝０である。ステップ２より、R_1＝１、R_2＝０、R_3＝１、R_4＝０．４、R_5＝０である（これは、Ｐには８つしか要素がない場合を想定しているが、当てはまる場合はほとんどなく要素は凡そ２００以上になるはずである）。次に、広告リストＡには3つの広告があると仮定する。広告の５つのカテゴリーの重みを次のように仮定する。

【0175】
【表2】

広告名	娯楽	家族	ナイトライフ	１０代	アダルト	販売比
ＩＭＤＢ	0.9	0.5	0.7	0.9	0.9	0.8
ミッション・トゥー・マーズ	0.9	0	0.9	0.9	0.8	1.1
ＡＭＣ劇場	0.9	0.9	0.7	0.9	0.7	1.0

【0176】
よって、これらの重みづけ｛x_1、x_2、x_3、x_4、x_5｝から、計算を行って各広告A_iに対しG_iの値を以下のように得るが、ここにｉ∈｛１，２，３｝である。

【0177】
$G_i = S_i \cdot (R_1 x_1 + \ldots + R_n x_n)$
G_1＝０．８・（（１）（０．９）＋０＋（１）（０．７）＋（０．４）（０．９）＋０）＝１．５６８
G_2＝１．１・（（１）（０．９）＋０＋（１）（０．９）＋（０．４）（０．９）＋０）＝２．３７６
G_3＝１．０・（（１）（０．９）＋０＋（１）（０．７）＋（０．４）（０．９）＋

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０）＝１．９６

【0178】

この様に、コンテキスト及び販売比に基づけば、「ミッション・トゥー・マース」の広告が最も適当である。このアルゴリズムは、検索されている情報への関連性に基づいて異なるカテゴリーのコンテキストに注意する。また、販売基準に合わせて流す必要のある広告に気づきそれを順序付けの要素にするように編成を行うこともする。本例では、広告、カテゴリー、及びＰの基準の短いリストしか示していない。アルゴリズムは、もっと多くのカテゴリー及び基準を利用しようとするものである。

【0179】

図３７－４３は、ユーザーと音声ポータル１０との間の対話の代表的なダイアログマップを示している。図３７－４３に関連して記載されているダイアログマップは、説明のためだけの図である。関心対象である映画、天気、交通、株及びスポーツの垂直ドメインを図に示しているが、関心対象の何れの垂直ドメインでも、特に、図４－６に関連して説明したデータ構造モデル３００、４００、４５０により入手可能な、発展的で適用性のある機能に照らして、このようなダイアログマップ（及び音声ポータル１０のユーザーとの対話）に含まれ得ることは明らかである。更に、ユーザーと音声ポータル１０との間の異なる対話を示す特定のブロックは、説明するためだけのものである。関心対象の多くの可能な垂直ドメインそれぞれに対し、様々な対話が可能である。

【0180】

図３７はダイアログマップ３７００を示しており、ユーザーによって音声ポータル１０へ電話呼び出しが行われた後ブロック３７１０が実行され、歓迎を受ける。ブロック３７１０の後ブロック３７２０が実行され、署名手続きが続く（更に図３８に関連して記載されている）。ブロック３７２０の署名手続きの後、ユーザーは、ブロック３７３０及び３７４０で、音声ポータル１０のサービスへの案内を受けるか、又は、ブロック３７５０で、可能性のある関心対象の垂直ドメインの案内への通路情報へ直接進むか、選択することができる。具体的には、ブロック３７３０では、サービスがどの様に行われるかに関し案内情報が提供される。ブロック３７５０では、音声ポータル１０は、ユーザーに、関心対象のドメインを「通路」（例えば、映画、天気、交通、株、スポーツ）から選択するように要求する。

【0181】

ユーザーが関心対象の映画ドメインを選択すれば、ブロック３７６０が実行され、そこで映画サブシステムが実行され（図３９と関連して更に説明する）、ユーザーは、映画リスト、劇場及び評論のような映画情報と取引にアクセスすることになる。ユーザーが関心対象の天気ドメインを選択すれば、ブロック３７７０が実行され、そこで天気サブシステムが実行され（図４０と関連して更に説明する）、ユーザーは、好みの場所又は何れかの場所の今日の予報、又は数日先の予報のような天気情報にアクセスすることになる。ユーザーが関心対象の交通ドメインを選択すれば、ブロック３７８０が実行され、そこで交通サブシステムが実行され（図４１と関連して更に説明する）、ユーザーは、市街の報告、あるルートに関する報告、又は個人向けの報告のような交通情報にアクセスすることになる。ユーザーが関心対象の株ドメインを選択すれば、ブロック３７９０が実行され、そこで株サブシステムが実行され（図４２と関連して更に説明する）、ユーザーは、市場の動向、株の相場、株のニュース、個人向けの株ニュース又は取引（例えば、売り、買い）のような株情報及び取引にアクセスすることになる。ユーザーが関心対象のスポーツドメインを選択すれば、ブロック２５００が実行され、そこでスポーツサブシステムが実行され（図４３と関連して更に説明する）、ユーザーは、スポーツのスコア、スポーツニュース、スポーツイベントのチケット情報及びスポーツの夢のリーグ取引のようなスポーツ情報と取引にアクセスすることになる。

【0182】

図３８は、署名サブシステムを示している。ブロック３８１０で、発信者の識別が試みられている。音声ポータル１０のユーザーの１つのタイプは、識別されていないユーザー

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である。識別されていないユーザーがコールインする（恐らく初めて）と、そのユーザーは、従来式の発信者識別技術（発信者ＩＤ）によってつきとめられるか、られないかのどちらかである。発信者ＩＤがデータベース１７０内になければ、発信者は恐らく新規発信者である。発信者ＩＤが秘密にされると、音声ポータル１０はどちらの方法も通知できない。ある実施例では、音声ポータル１０は電話番号（又は他の識別子）を質問して、「識別済み」発信者と継続する。別の実施例では、音声ポータル１０は検証無しでも継続する。この判断は、要求されている情報の種類によって決まる。例えば、特定の垂直ドメインでは、ユーザーの確認は、行為（例えばオークション）の前にユーザーを確認するよう判定される必要がある。

【0183】

確認されたユーザーは、加入しているか、していないか何れかである。確認されたユーザーが加入している場合、音声ポータル１０は、データベース１７０からのクレジットカード及び嗜好のようなユーザーに関する情報を有している。音声ポータル１０が嗜好と関心対象の追跡を開始し、サービスに対する高い付加価値とロイヤリティを実現できるように、ユーザーは加入するのが望ましい。ユーザーは、加入に際して、住所及びクレジットカードの番号を含むプロファイル情報を指定する。更に、特定の発信者に関する情報が蓄積されるほど、送られてくる広告が多く（従って価値のあるものに）なる。

【0184】

発信者の識別が可能であれば、ブロック３８２０が実行され、ユーザーにパスワードを質問することにより、ユーザーの確認が行われる。一旦パスワードが検証されると、ユーザーの嗜好が設定され、制御はブロック３８７０へ移り、図３７へ戻って、案内又は通路選択が実行される。与えられたパスワードが無効であれば、制御はブロック３８４０へ移る。

【0185】

発信者の識別が不可能か、又はユーザーが自分のパスワードを知らない場合、制御はブロック３８３０へ移り、音声ポータル１０はユーザーの口座状況を判定する。ユーザーが口座を持っていない場合、制御はブロック３８５０へ移り、ユーザーは口座を開設すべきだという口座開設催促が与えられる。ユーザーが口座を持っている場合、制御はブロック３８４０へ移り、音声ポータル１０は、ユーザーの口座番号を入手する。ユーザーが口座番号を忘れている場合、制御はブロック３８５０へ移り、ユーザーに口座を開設することを求める。ユーザーが有効な口座番号を提供すれば、ユーザー確認のため制御はブロック３８２０へ移る。ユーザーが無効な口座番号を提供すれば、制御はブロック３８６０へ移り、音声ポータル１０は、ユーザーに口座が無効であることを通知し、ウェブサイトを訪れるか、又は助けを求めて支援番号を呼び出すよう通知する。次に制御はブロック３８８０そして図３８へ移り、そこで案内又は通路選択が実行される。

【0186】

図３９では、映画サブシステムが実行される。音声ポータル１０は、ブロック３９１０で、関心対象の映画ドメインへの案内を流す。ユーザーは、劇場での映画、映画のリスト、映画の批評のようなオプションを選択することができる。ユーザーが劇場での映画を選択すれば、制御はブロック３９１５へ移り、音声ポータル１０は、ユーザーが所望した地理的場所を決定する。ＺＩＰコード、州、都市のような場所又は嗜好を決定するのには、様々な方法が利用できる。所与の場所付近に劇場がない場合、ブロック３９２０が実行され、ユーザーに所与の領域内には劇場がない旨知らせるメッセージが流される。場所が決定されると、ブロック３９２５が実行され、その場所内の劇場名がリストアップされる。ブロック３９２５の後ブロック３９３０が実行され、前記領域内の劇場で上映されている映画がリストアップされる。音声ポータル１０は、ユーザーに、映画を選択するよう要求し、ブロック３９３５へ移る。

【0187】

関心対象の映画ドメインへの案内を流したブロック３９１０に戻り、ユーザーが映画のリストを求めれば、ブロック３９４０が実行され、音声ポータル１０は映画のタイトルを

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ユーザーに要求する。ブロック３９４０の後ブロック３９４５が実行され、地理的場所がユーザーに求められる。上に述べたように、発信者の場所を判定するにの、様々な方法が用いられる。選択された映画を上映している劇場があれば、ブロック３９５０が実行され、その映画を上映している劇場がリストアップされ、ユーザーはそのリストから選択するよう求められる。次に制御はブロック３９３５へ移る。選択された映画を上映している劇場が無ければ、ブロック３９５５が実行され、最も近い場所での上映時間が、ユーザーに提供される。次に制御はブロック３９３５へ移る。

【0188】

関心対象の映画ドメインへの案内を流したブロック３９１０では、ユーザーが映画の評論を求めれば、ブロック３９６０が実行され、音声ポータル１０は映画のタイトルをユーザーに要求する。ブロック３９６０の後ブロック３９６５が実行され、選択された映画の評論が流される。ブロック３９６５の後ブロック３９７０が実行され、音声ポータル１０は、ユーザーに、選択された映画の上映を知りたいかどうか質問する。ユーザーが拒否すれば、制御はブロック３９６０へ戻り、映画評論のための別の映画タイトルを得る。ユーザーが受け入れれば、制御はブロック３９４５へ移る。

【0189】

ブロック３９３５では、音声ポータル１０が、選択された映画及び劇場の上映時間を提供する。音声ポータル１０は、ブロック３９８０で、次の行動を要求する。ユーザーは劇場の住所を要求することができ、そのアドレスはブロック３９８５で提供される。ユーザーは、映画の評論を要求することもでき、その評論はブロック３９９０で提供される。ユーザーが、関心対象の映画ドメインを離れたい場合、制御は図３７のブロック３７５０へ戻る。

【0190】

図４０では、天気サブシステムが図示のように実行される。ブロック４０１０で、音声ポータル１０は、関心対象の天気ドメインへの案内を流す。ブロック４０１０で案内が流された後、制御はブロック４０２０へ移り、音声ポータル１０は、関心対象の天気ドメインで用いる場所情報を入手する。先に述べたように、ＺＩＰコード、都市又は州、及び他の場所的証拠から場所を手に入れるように、各種の方法を使って場所情報を入手することができる。ブロック４０２０の後、制御はブロック４０３０へ移り、音声ポータル１０は、ユーザーが、現在の天気情報を欲しいのか、先の天気情報を欲しいのか応答を促す。ユーザーが先の天気情報を聴くことを選択すれば、制御はブロック４０４０へ移り、音声ポータル１０は、ユーザーに天気潜在オプションを提供するプロンプトを流す。ユーザーが現在の天気情報を欲しい場合、又はユーザーがブロック４０４０で潜在オプションを選択した後、制御はブロック４０５０へ移り、音声ポータル１０は、所望の天気情報を提供する。

【0191】

ブロック４０５０が実行された後、制御はブロック４０６０へ移り、音声ポータル１０は、ユーザーに、先の予報を所望するか否か質問する。先の予報が所望の場合、制御はブロック４０７０へ移り、音声ポータル１０は先の予報を提供する。ブロック４０７０の後、又はユーザーが先の予報を求めない場合、制御はブロック４０８０へ移り、音声ポータル１０は、ユーザーに次の行動をたずねる。ユーザーが関心対象の天気ドメインを継続したい場合、制御はブロック４０２０へ移る。ユーザーが関心対象の天気ドメインを離れたい場合、制御は、図３７でブロック３７５０に関連して述べた通路に相当するブロック４０９０へ移る。

【0192】

図４１では、交通サブシステムが実行される。ブロック４１１０で、音声ポータル１０は、関心対象の交通ドメインへの案内を流す。ブロック４１１０の後、制御はブロック４１１５へ渡り、音声ポータル１０は、ユーザーに関する場所情報又はユーザーに関する個人向け情報を入手する。ブロック４１１５の後、制御はブロック４１２０へ移り、音声ポータル１０は、市街の交通情報を入手する。市街の交通情報が不可能であれば、制御はブ

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ロック４１３５へ移り，ＺＩＰコード交通情報が入手される。都市が音声ポータル１０に認識されていなければ、ＺＩＰコード交通情報はフォールバックである。都市のデータが見つからず、データが近くの場所に含まれている場合，制御はブロック４１４０へ移り、音声ポータル１０は、付近の都市をたずねる。ブロック４１２０で交通イベントが報告できない場合、制御はブロック４１２５へ移り、ユーザーに、その都市には報告できる交通情報がない旨告げられる。ブロック４１２０で交通データが入手できない場合、制御はブロック４１３０へ移り，ユーザーには、他の都市を試すか、或いは新しい関心対象のドメインの選択に向け通路へ進むか、のオプションが提示される。

【0193】

ブロック４１２０の後、制御はブロック４１４５へ移り、音声ポータル１０は特定の交通ルート又は「都市全体」を要求する。ブロック４１４５の後、制御はブロック４１５０へ移り、音声ポータル１０はルート指示情報を入手する。ブロック４１５０の後、そのルートに報告すべき交通量がない場合、制御はブロック４１５５へ移る。ブロック４１５５で、ユーザーには、新しい交通ルートか「都市全体」を選択するか、通路へ行き新しい関心対象のドメインを選択するかというオプションが提示される。ルート交通情報が入手可能であれば、ブロック４１５０の後、制御はブロック４１６０へ移り、音声ポータル１０は、選択されたルートのルート交通量をリストアップする。ユーザーがブロック４１４５で「都市全体」を選択した場合、制御はブロック４１６５へ移り、音声ポータル１０は都市の交通情報をリストアップする。

【0194】

ブロック４１６０とブロック４１６５の後、制御はブロック４１７０へ移り、音声ポータル１０は、ユーザーに所望の交通報告を提供する。ブロック４１７０の後、制御はブロック４１７５へ移り、音声ポータル１０は、関心対象の交通ドメインで実行すべき次の行動を要求する。ある代表的実施例では、次の行動に、交通報告の反復、交通情報リストアップの継続通路への進行が含まれる。ユーザーがブロック４１７５で選択した後、制御は適切なブロックへ移る。例えば、ユーザーが交通報告の反復を選択する場合、制御はブロック４１７０へ移る。ユーザーがリスト継続のオプションを選択する場合、制御は、ブロック４１４５でなされた、特定の交通ルートか「都市全体」かの選択によって、ブロック４１６０かブロック４１６５へ移る。ユーザーが通路への進行を選択する場合、制御は、図３７のブロック３７５０に関連して説明された通路に相当するブロック４１８０へ移る。

【0195】

図４２では、株サブシステムが実行される。ブロック４１２０で、音声ポータル１０は、関心対象の株ドメインへの案内を流す。ブロック４２１０の後、制御はブロック４２１５へ移り、音声ポータル１０は、ユーザーに、市場の動向、株価、或いは「マイ・クワック」と呼ばれる個人向けリストを選択するオプションを提示する。ユーザーが市場の動向を選択すれば、制御はブロック４２４０へ移り、ダウジョーンズ工業平均、ナスダック、Ｓ＆Ｐ５００、ＮＹＳＥ出来高、ナスダック出来高、３０年社債などの各種市場の動向が提供される。ユーザーが株価を選択すれば、制御はブロック４２２０へ移り、音声ポータル１０はユーザーから特定の株の銘柄を入手する。ブロック４２２０の後、制御はブロック４２２５へ移り、音声ポータル１０は、ブロック４２２０で提供された株の銘柄に対応する株式取引を入手する。株式取引が識別された後、制御はブロック４２３０へ移り、音声ポータル１０は、株価、最新の取引、変動、出来高及び一日の最高値／最安値のような株の情報を提供する。

【0196】

ブロック４３２０の後、制御はブロック４２３５へ移り、音声ポータル１０は関心対象の株のドメインで実行すべき次の行動をたずねる。ある代表的な実施例では、ユーザーは、株情報を繰り返す／株の情報をリストアップし続ける、新しい株を入手する、市場の動向を聞く、或いは通路へ行くことを選択できる。ブロック４２３５でユーザーが行った選択によって、制御は、市場の動向を選択した場合はブロック４２４０へ、新しい株の銘柄

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を選択した場合はブロック４２４０へ、個人向けのマイ・クワック株を選択した場合はブロック４２５０へ移り、通路を選択した場合はブロック４２７５０へ移る、ブロック４２７５の前に、制御はブロック４２７０へ移り、音声ポータル１０は、個人向け情報をより速く入手するには嗜好を設定することができるという嗜好の催促をユーザーに提供する。ユーザーが、嗜好に関するこのコールで既に催促を受けていれば、制御は直接ブロック４２７５へ移る。

【0197】

ブロック４２１５でユーザーが「マイ・クワック」を選択した場合、制御は、預金口座情報が識別されなければブロック４２４５へ移り、口座情報が識別されればブロック４２５０へ移る。ブロック４２４５では、嗜好が設定され、口座情報が確立される。ユーザーに、ウェブ上に口座を設定するよう進言してもよい。ブロック４２５０では、株価、最新の取引、変動及び出来高のような個人向けの株情報が提供される。ブロック４２５０のオペレーションの間に、ユーザーは、例えば、特定の株に関する情報が流れている間に「その株」と声を出すことによって、特定の株を識別することができる。そのような選択がなされた場合、制御はブロック４２５５へ移り、特定の株に対して株のニュースオプションがリストアップされる。ユーザーが、ブロック４２５５でリストから特定のタイプの株ニュースを選択した後、制御はブロック４２６０へ移り、音声ポータル１０は、選択された株のニュースを流す。ブロック４２６０の後、制御はブロック４２６５へ移り、音声ポータル１０は、ユーザーに、戻って株のニュースのリストを入手するか（ブロック４２５５）又は株のニュースを出るかをたずねる。ユーザーが株のニュースを出ることを選択すれば、制御はブロック４２３５へ移り、株に関する次の行動が求められる。ユーザーが関心対象の株のドメインを完了すると、制御は、図３７のブロック３７５０に関連して述べられている通路に相当するブロック４２７５へ移る。

【0198】

図４３では、スポーツサブシステムが実行される。ブロック４３１０で、音声ポータル１０は、関心対象のスポーツドメインへの案内を流す。ブロック４３１０の後、制御はブロック４３１５へ移り、音声ポータル１０がユーザーの所望するスポーツのタイプを入手するか、又は、ユーザーが「マイ・クワック」と言って個人向けのスポーツタイプのスコアを入手する。ユーザーが特定のスポーツを選択すると、制御はブロック４３２０へ移り、音声ポータル１０は、リストから選択されたスポーツのリーグ名を入手する。例えば、音声ポータル１０は、「ＮＦＬ、ＮＢＡ、ＮＨＬ及びメジャーリーグベースボール」をリストアップする。ユーザーがリーグ名を選択すると、制御はブロック４３２５へ移り、音声ポータル１０は、ユーザーが関心を持っている特定のチームを入手する。ブロック４３２５の後、制御はブロック４３３０へ移り、スポーツのスコアが提供される。例えば、音声ポータル１０は、「ＴＥＡＭが行った最新の試合は、ＤＡＴＥで、ＴＥＡＭ１との最終的なスコアはＳＣＯＲＥ１で、ＴＥＡＭ２との最終的なスコアはＳＣＯＲＥ２である」と言う。

【0199】

ブロック４３１５で、ユーザーが「マイ・クワック」を選択した場合、制御はブロック４２４０へ移る。ブロック４３４０で、音声ポータル１０は、個人向けのマイ・クワックスポーツチームのスポーツのスコアを提供する。ブロック４３４０の後、制御はブロック４３３５へ移り、音声ポータル１０は、スポーツニュースにチーム特定のニュースを提供する。ブロック４３３０及びブロック４３３５の後、制御はブロック４３４５へ移り、音声ポータル１０は、ユーザーがスポーツニュースを繰り返し聞きたいかどうかたずねる。ユーザーが肯定すると、音声ポータル１０は、戻って提供された情報を繰り返す。ユーザーが情報を繰り返して欲しくなければ、制御はブロック４３５０へ移り、音声ポータル１０は、関心対象のスポーツドメインで実行すべき次の行動を求める。ブロック４３５０の後、リーグ名を選択する際には制御はブロック４３２０へ移り、マイ・クワックスポーツのスコアを提供する際には制御はブロック４３４０へ移り、通路情報の際には制御はブロック４３５５へ移る。ブロック４３５５は、図３７のブロック３７５０に関連して述べた

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通路に相当する。図４０－４３の各サブシステムは、単なる例として示している。

【0200】

図面に示し、上に説明した実施例は現在のところ好適であるとして示しているが、これらの実施例は単なる例として提示している旨理解頂きたい。他の実施例は、音声ポータル経由でインターネットへのアクセスを単純化するための様々なデータ構造を含んでいる。本発明は、特定の実施例に限定されず、特許請求の範囲に述べる範囲及び精神の内にありながら、様々な修正、組み合わせ及び変更に及ぶものである。

【図面の簡単な説明】

【0201】

【図1】インターネットに接続されている音声ポータルの全体図である。

【図2】図１の音声ポータルの代表的な機能的実施例の全体的機能ブロック図である。

【図3】図１の音声ポータルの代表的な物理的実施例の更に詳細なブロック図である。

【図4】図１の音声ポータルに用いられている、代表的データ構造モデルの概略図である。

【図5】ユーザー関連情報に関する、図４の代表的データ構造モデルの概略図である。

【図6】広告関連情報に関する、図４の代表的データ構造モデルの概略図である。

【図7】図４の代表的データ構造モデルの代表的作成プロセスを示すフローチャートである。

【図8】図７の代表的作成プロセスの概略図である。

【図9】非プログラミング手段を使ってインターネットベースの情報を集める代表的プロセスを示すフローチャートである。

【図10】図１の音声ポータルに関連するルールの非プログラミング開発の代表的プロセスの概略図である。

【図11】図１の音声ポータルに関連するルールの非プログラミング開発に関する代表的グラフィカルユーザーインタフェースである。

【図12】図１の音声ポータルに関連するルールの非プログラミング開発に用いられる代表的グラフィカルユーザーインタフェースウインドウである。

【図13】図１２のグラフィカルユーザーインタフェースウインドウの拡大フォームである。

【図14】図１の音声ポータルに関連するルールの非プログラミング開発に用いられる、代表的グラフィカルユーザーインタフェース探索データエディタウインドウである。

【図15】図１の音声ポータルに関連するルールの非プログラミング開発に用いられる、代表的グラフィカルユーザーインタフェースインドウである。

【図16】図１５のグラフィカルユーザーインタフェースウインドウの拡大フォームである。

【図17】図１の音声ポータルに関連するルールの非プログラミング開発に用いられる、代表的グラフィカルユーザーインタフェースウインドウである。

【図18】図１の音声ポータルに関連するルールの非プログラミング開発に用いられる、ベンダーフォームオプションのための代表的グラフィカルユーザーインタフェースウインドウである。

【図19】図１の音声ポータルに関連するルールの非プログラミング開発におけるＵＲＬの試験のための代表的グラフィカルユーザーインタフェースウインドウである。

【図20】図１の音声ポータルに関連するルールの非プログラミング開発における、パターンの選択のための代表的グラフィカルユーザーインタフェースウインドウである。

【図21】図１の音声ポータルに関連するルールの非プログラミング開発の間に、複数のページ上でリンクを検出するためにパターンを識別するのに用いられる、代表的グラフィカルユーザーインタフェースウインドウである。

【図22】スパイダのプログラミングに用いられる階層構造の概略図である。

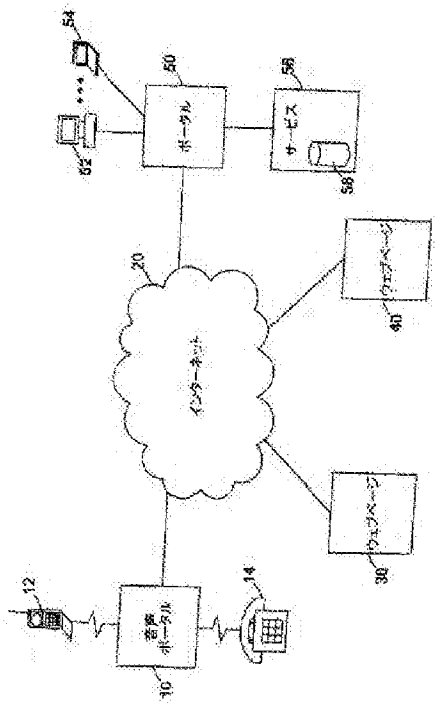
【図23】図１の音声ポータルと共に用いられるスパイダのプログラミングのための、代表的グラフィカルユーザーインタフェースウインドウである。

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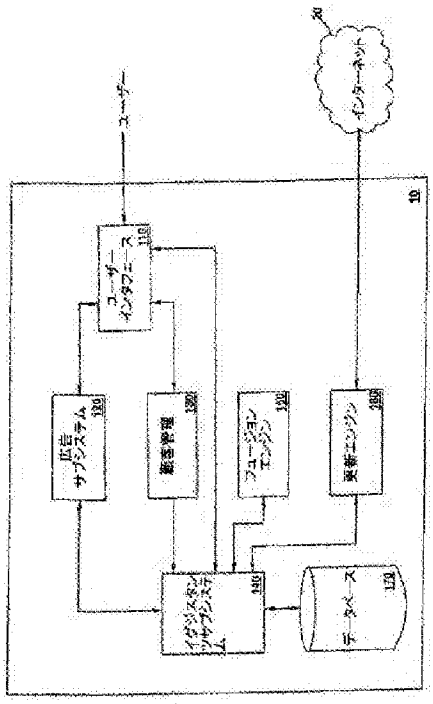
【図24】図２３の代表的グラフィカルユーザーインタフェースウインドウの拡大フォームである。
【図25】情報を図１の音声ポータルの統合データベースに融合させる、代表的プロセスを示すフローチャートである。
【図26】情報を図１の音声ポータルの統合データベースに融合させる、第２の代表的プロセスを示すフローチャートである。
【図27】所与のアイテムに関するより完全な情報を作るために、２つのイグジスタンツから規範的なイグジスタンツを作成する概略図である。
【図28】インターネットソースから図１の音声ポータルのユーザーへのデータ分離及び変換の代表的プロセスの第１部分の概略図である。
【図29】データがインターネットソースから図１の音声ポータルのユーザーへ分離及び変換される、図２８の代表的プロセスの第２部分の概略図である。
【図30】図１の音声ポータルの代表的オペレーションの流れを示すフローチャートである。
【図31】図３０のフローチャートの代表的なオペレーションサブシステムを示すフローチャートである。
【図32】図３０のフローチャートの第２の代表的なオペレーションサブシステムを示すフローチャートである。
【図33】図３０のフローチャートの第３の代表的なオペレーションサブシステムを示すフローチャートである。
【図34】図１の音声ポータルにおけるユーザー応答を流して所望のアイテム又はサービスを決定する、代表的プロセスを示すフローチャートである。
【図35】図１の音声ポータルを使って取引を実行する、代表的プロセスを示すフローチャートである。
【図36A】図１の音声ポータルを使って広告する、代表的プロセスを示すフローチャートである。
【図36B】図１の音声ポータルを使って広告する、第２の代表的プロセスを示すフローチャートである。
【図37】図１の音声ポータルの代表的対話マップを示すフローチャートである。
【図38】図３７の代表的な対話マップの代表的サブシステムを示すフローチャートである。
【図39】図３７の代表的な対話マップの第２の代表的サブシステムを示すフローチャートである。
【図40】図３７の代表的な対話マップの第３の代表的サブシステムを示すフローチャートである。
【図41】図３７の代表的な対話マップの第４の代表的サブシステムを示すフローチャートである。
【図42】図３７の代表的な対話マップの第５の代表的サブシステムを示すフローチャートである。
【図43】図３７の代表的な対話マップの第６の代表的サブシステムを示すフローチャートである。

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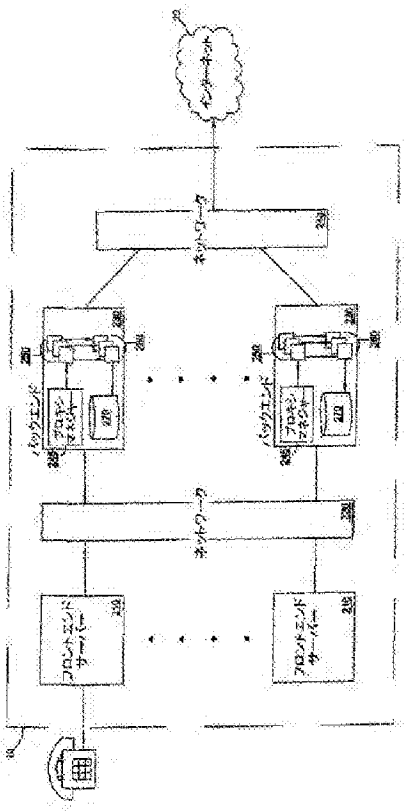
【図1】



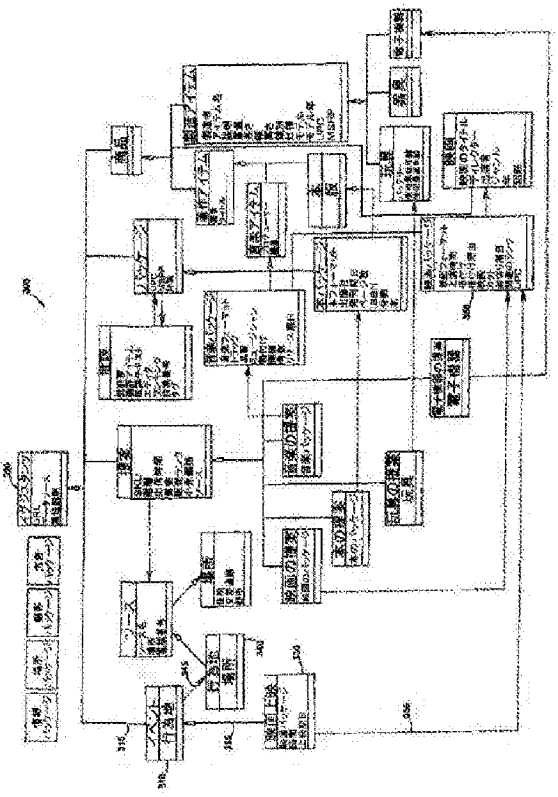
【図2】



【図3】

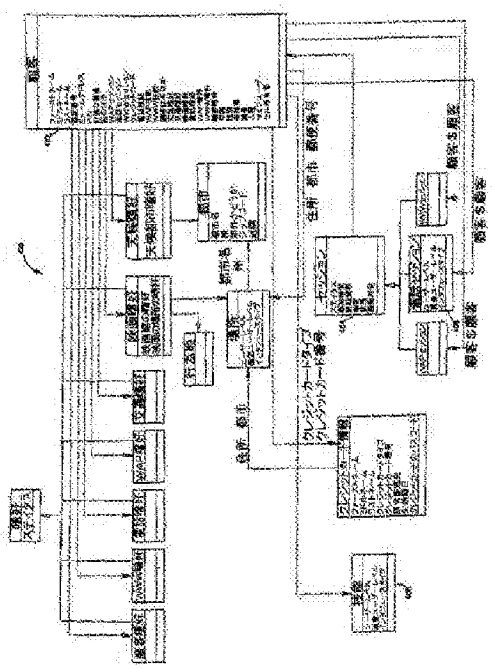


【図4】

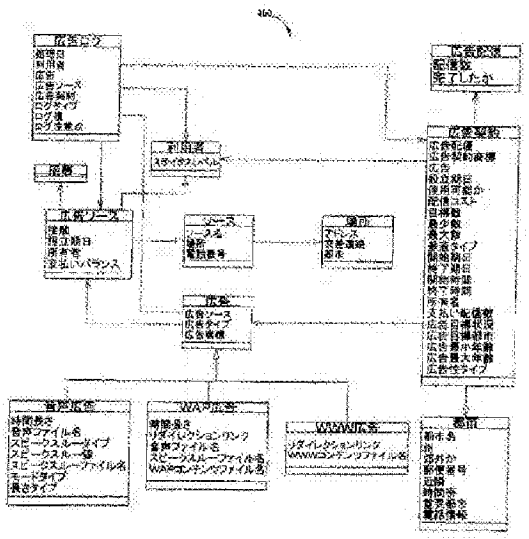


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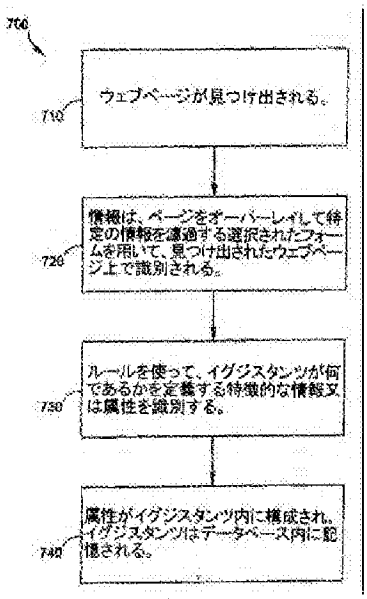
【図５】



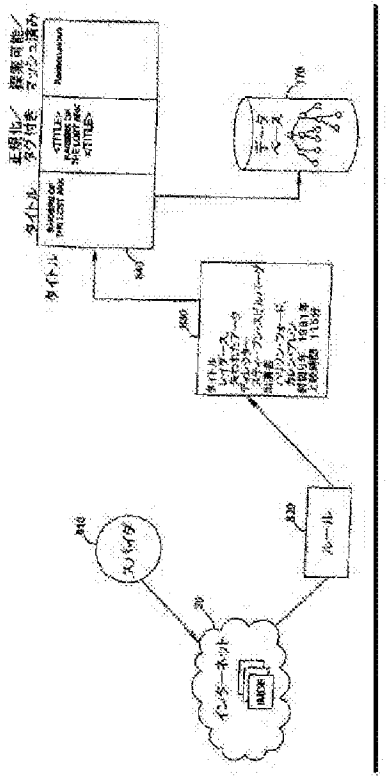
【図６】



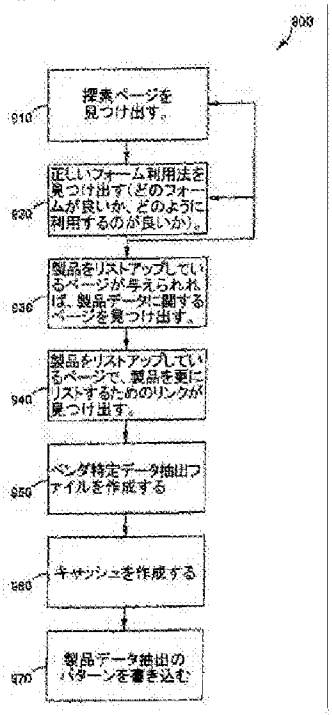
【図７】


700
710
ウェブページが見つけ出される。
720
情報は、ページをオーバーレイして特定の情報を通過する選択されたフォームを用いて、見つけ出されたウェブページ上で識別される。
730
ルールを使って、イグジスタンツが何であるかを定義する特徴的な情報又は属性を識別する。
740
属性がイグジスタンツ内に構成され、イグジスタンツはデータベース内に記憶される。

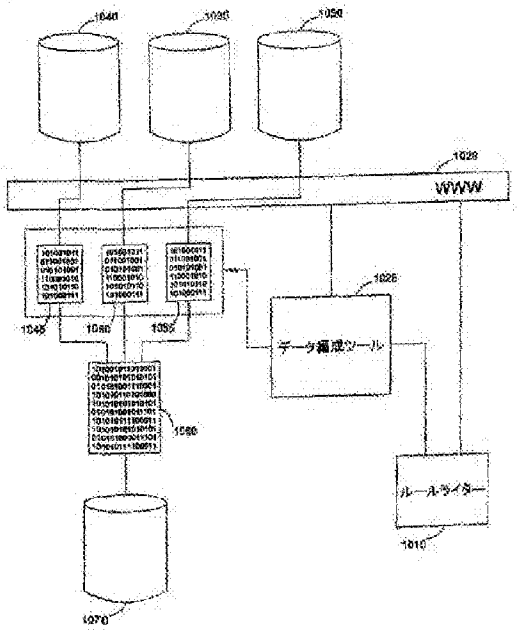
【図８】


タイトル
タイトル
データベース
ルール
インターネット

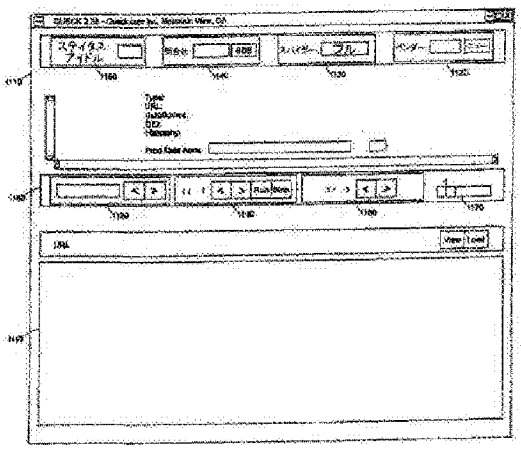
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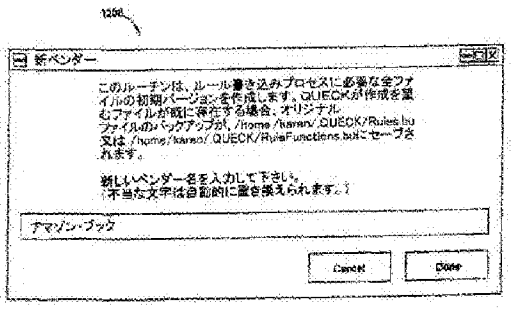
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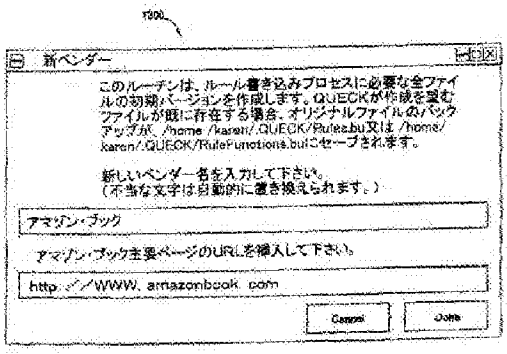
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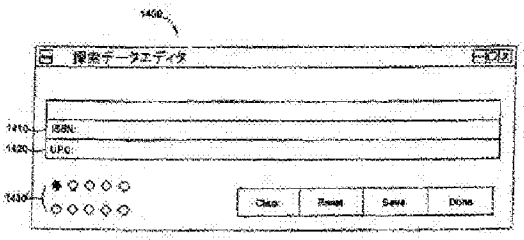
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【図１３】

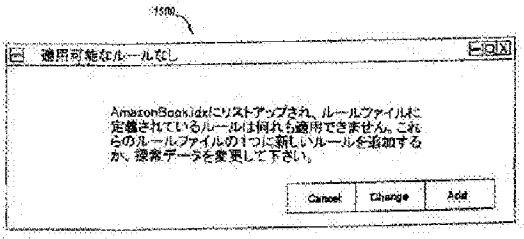


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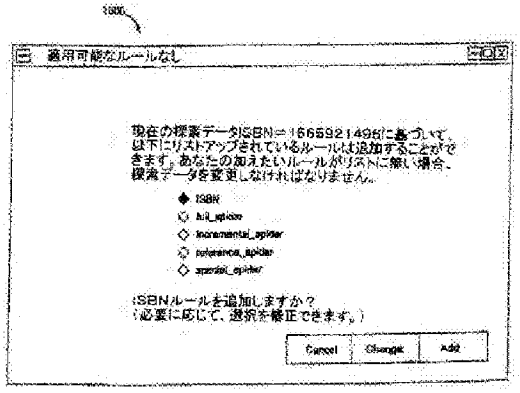


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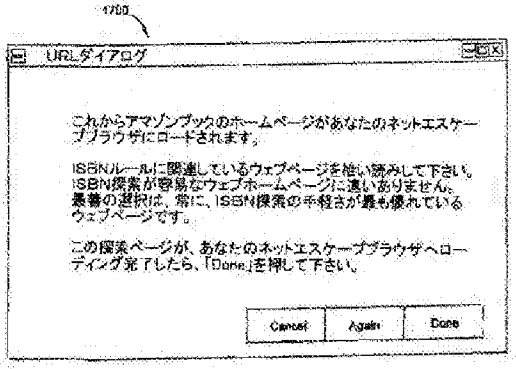
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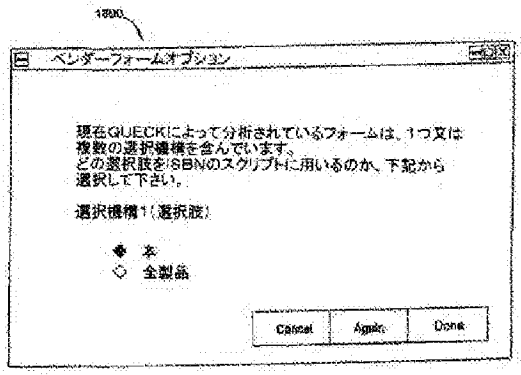
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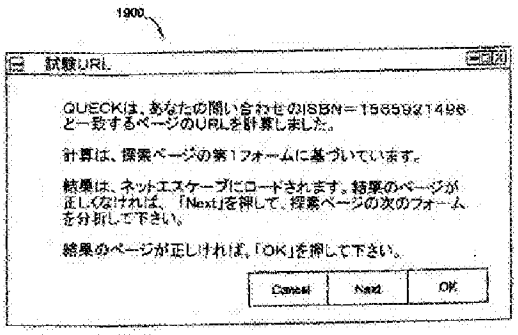
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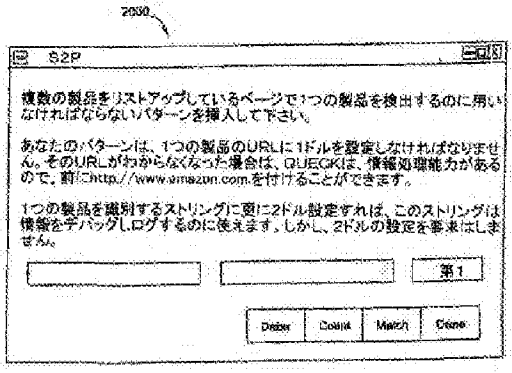
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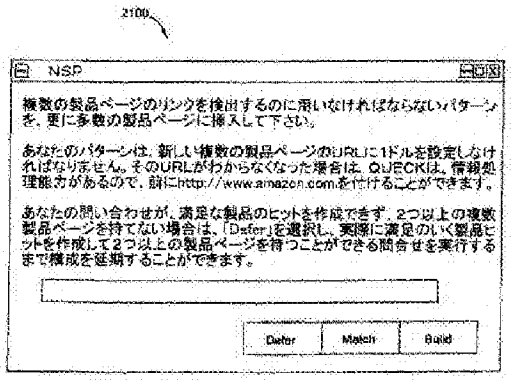
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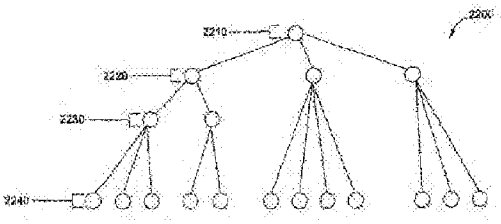
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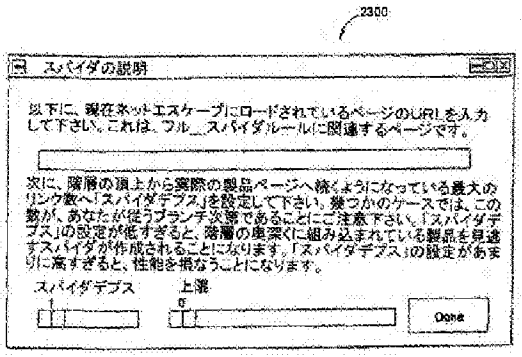


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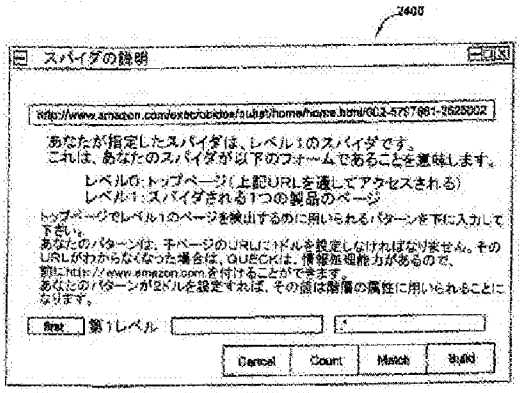


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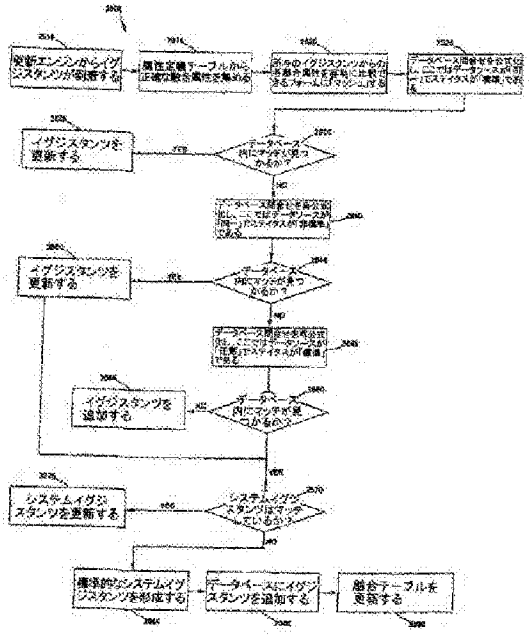
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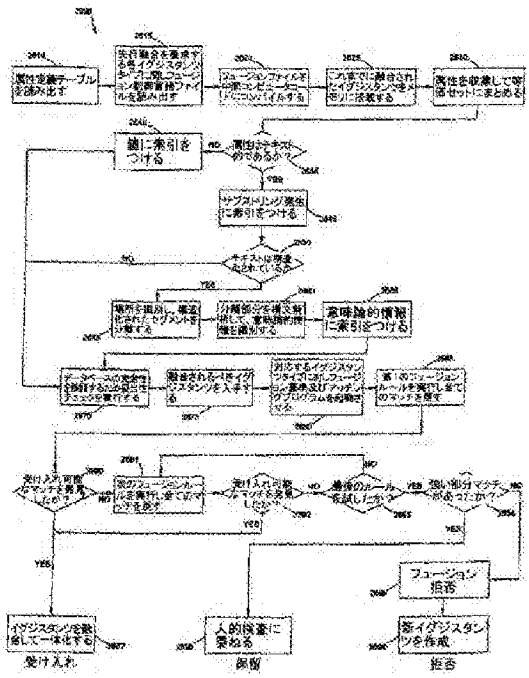
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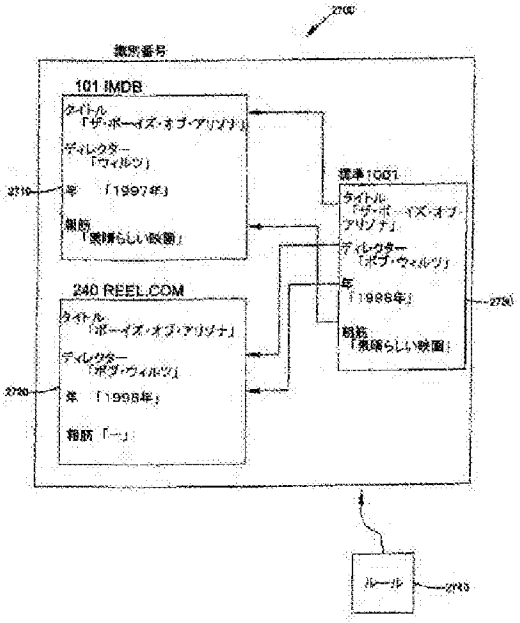
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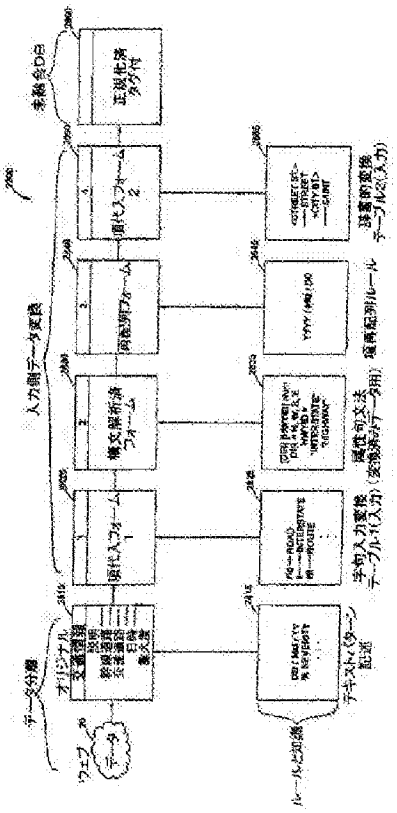
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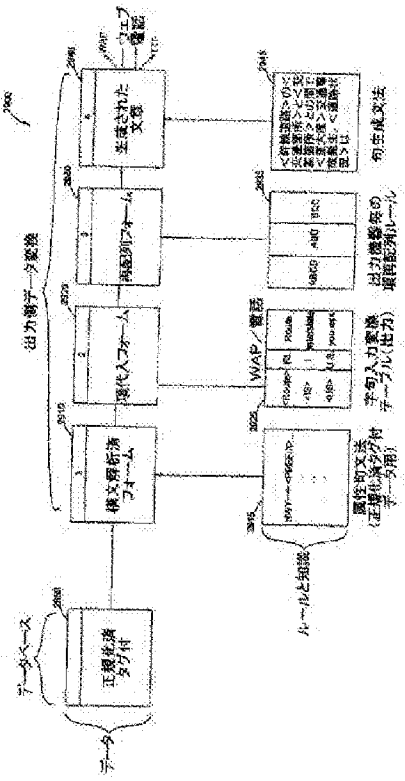
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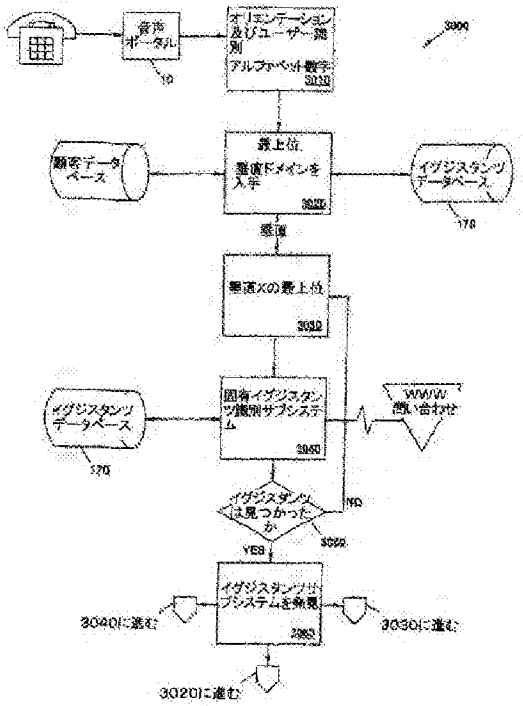
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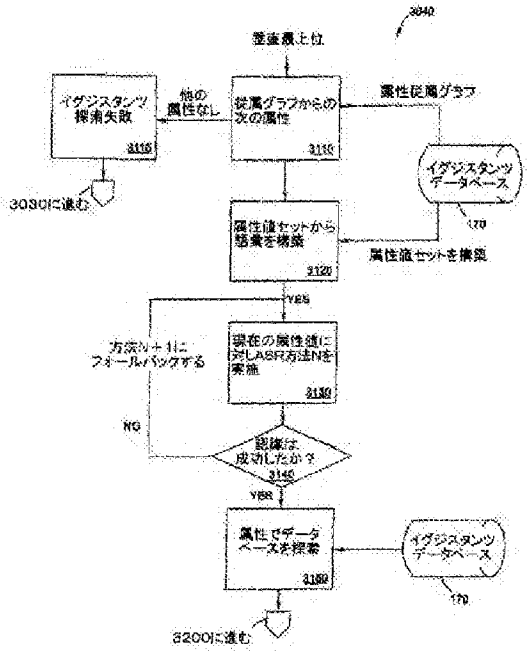
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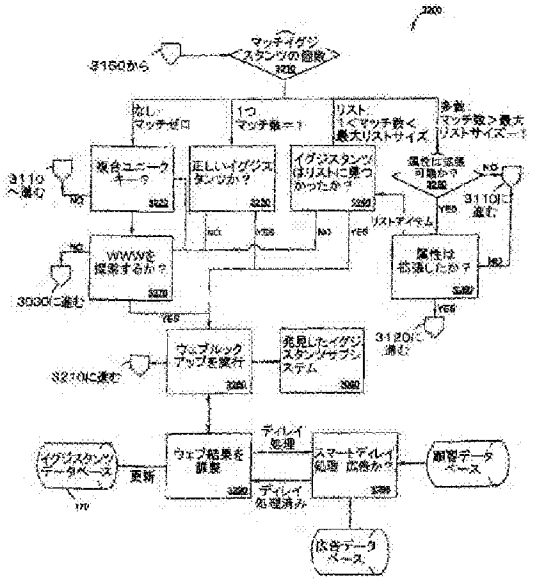


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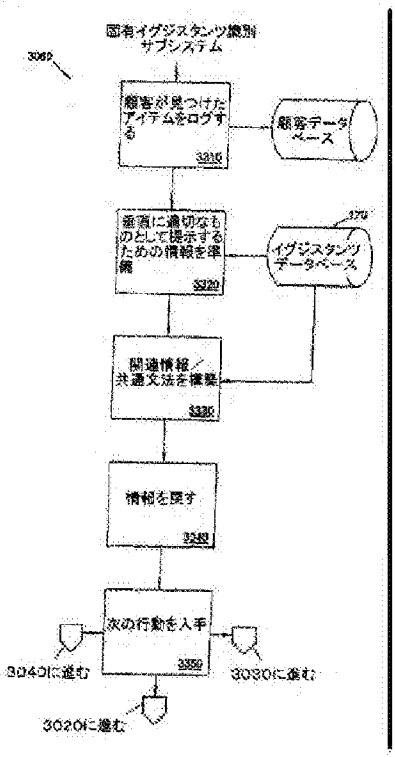


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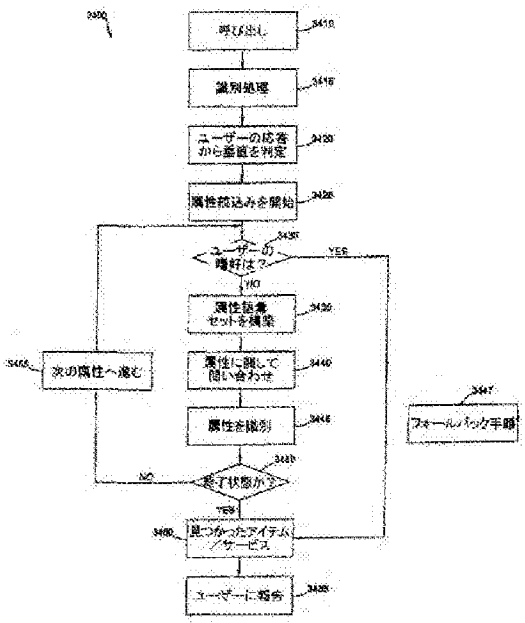
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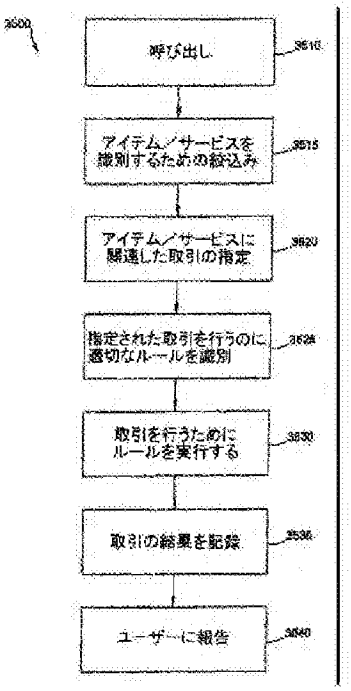
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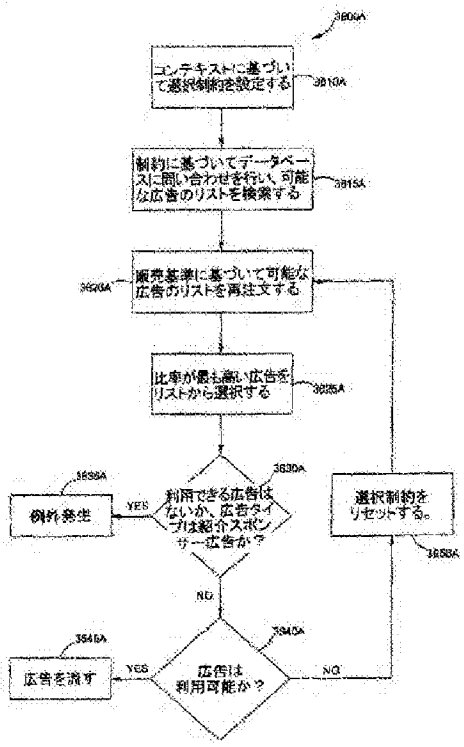


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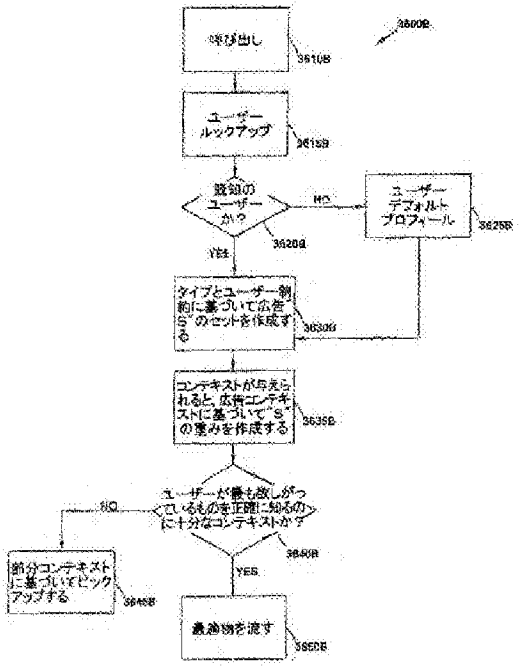


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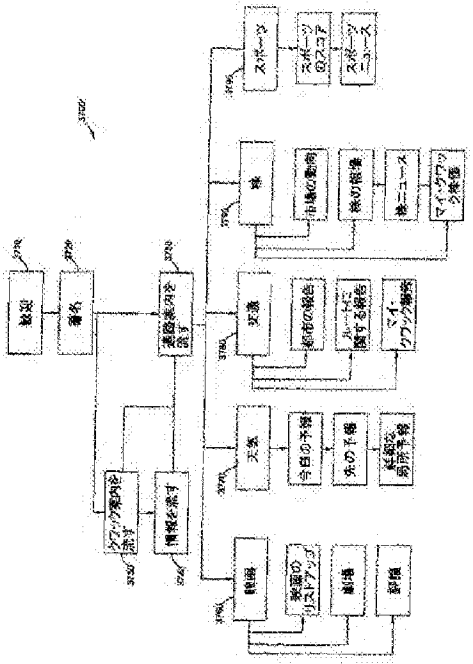
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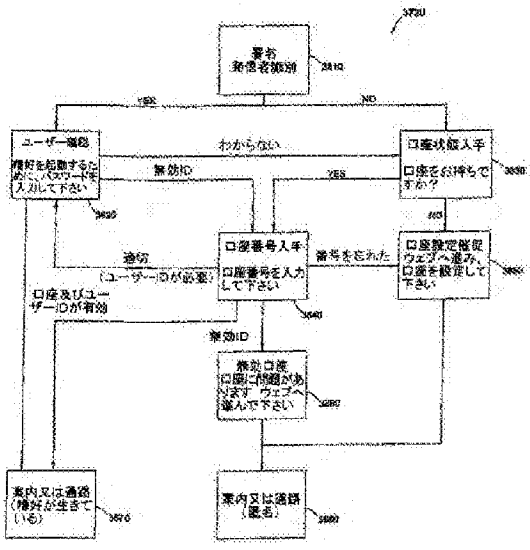
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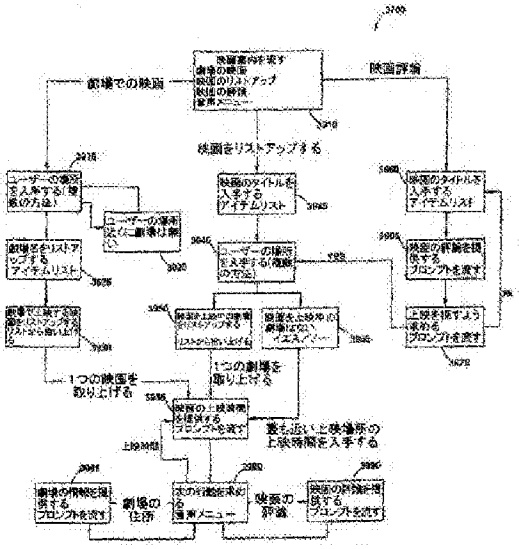
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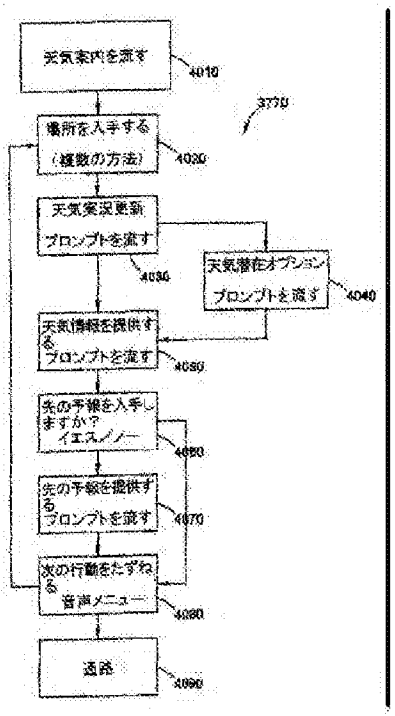
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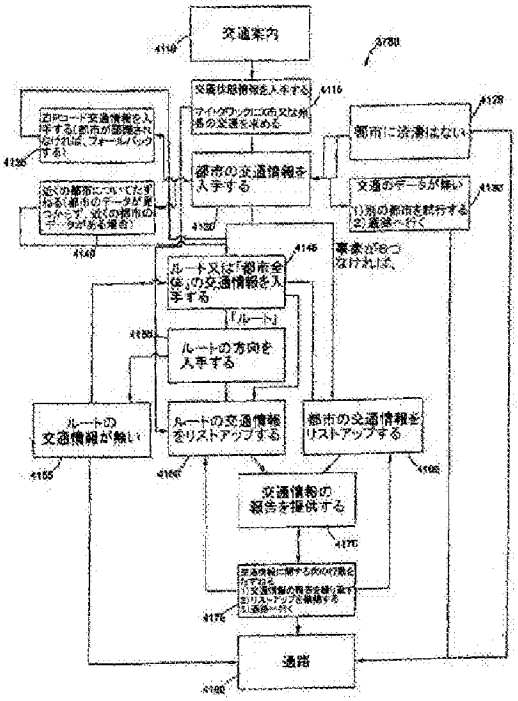
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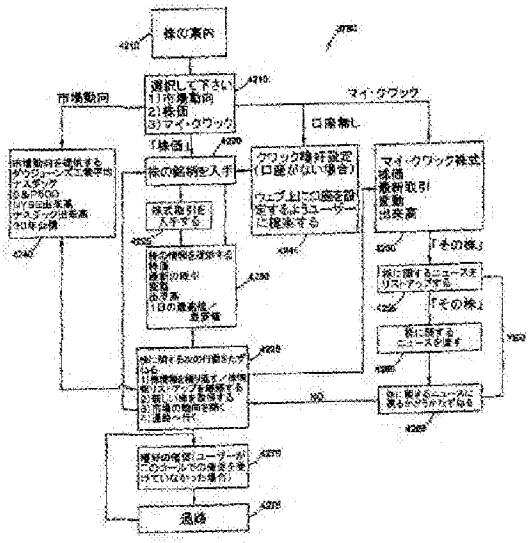
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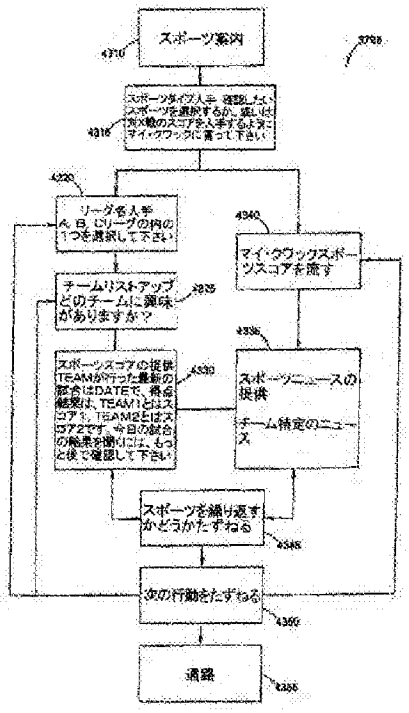
【図41】



【図42】



【図43】


スポーツ案内
4310
4315
4320
リーグ名入手
A, B, Cリーグの内の1つを選択して下さい
4325
チームリストアップ
どのチームに興味がありますか？
4330
スポーツスコアの提供
TEAMが行った最新の試合はDATEで、得点結果は、TEAM1とはスコア1、TEAM2とはスコア2です。今日の試合の結果を聞くには、もっと後で確認して下さい
4340
マイ・クワックスポーツスコアを聞く
4335
スポーツニュースの提供
チーム特定のニュース
スポーツを繰り返すかどうかたずねる
4345
次の行動をたずねる
4350
退出
4355

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		Ｇ１０Ｌ　15/22	３００Ｚ	

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Espacenet

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DIALOGUING RATIONAL AGENT, INTELLIGENT DIALOGUING SYSTEM USING THIS AGENT, METHOD OF CONTROLLING INTELLIGENT DIALOGUE, AND PROGRAM FOR USING IT

No documents available for this priority number.

Inventor(s): LOUIS VINCENT; PANAGET FRANCK; BRETIER PHILIPPE ± (LOUIS VINCENT, ; PANAGET FRANCK, ; BRETIER PHILIPPE)

Applicant(s): FRANCE TELECOM ± (FR TELECOM)

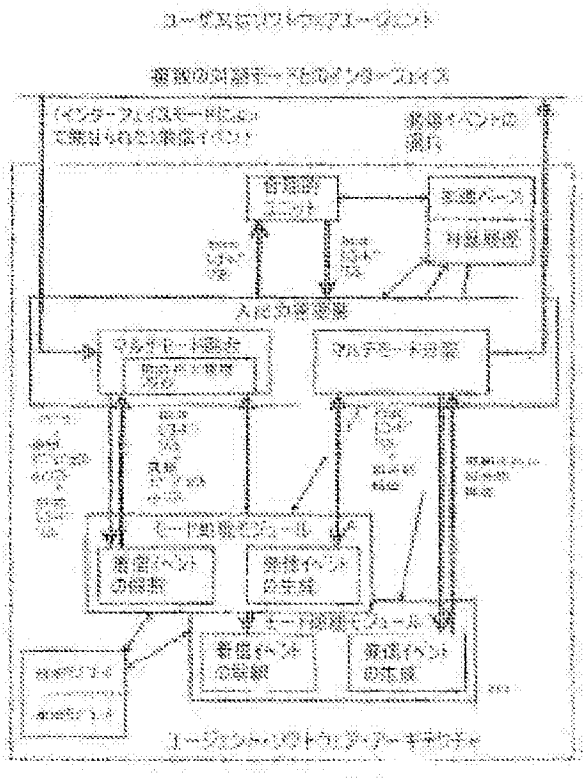
Classification: **- international:** ***G06F17/28; G06F3/01; G06F3/16; G10L15/22***
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Abstract of JP2006146881 (A)



PROBLEM TO BE SOLVED: To allow a dialoguing rational agent to generically manage multimodal interactions with its contacts, which may be human users or other software agents. ; SOLUTION: The rational agent includes an interpretation means to transform events translating the communication activity of an external agent into incoming formal records, a rational unit creating outgoing formal records as a function of the incoming formal records and a behavioral model of the rational agent, and an outgoing event generation means transforming the outgoing formal records into outgoing events enabling the communication activity of the rational agent with the external agent. The interpretation means comprise several interpretation modules, and the rational agent also comprises an input and output management layer, which correlates incoming formal records and submits the incoming formal communication records thus correlated to the rational unit. ; COPYRIGHT: (C)2006,JPO&NCIPI

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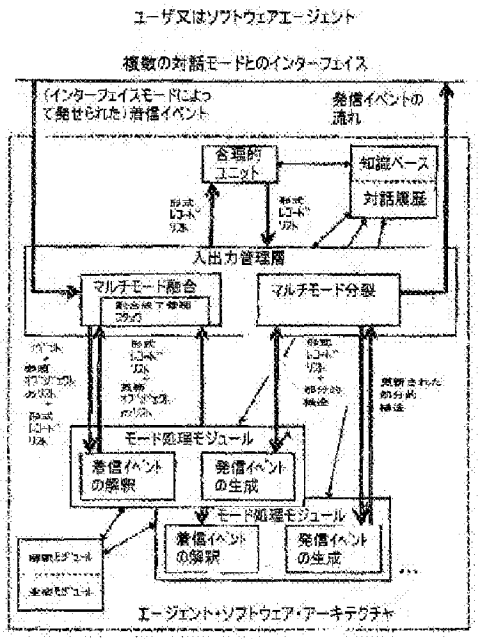
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最終頁に続く

(54)【発明の名称】会話用合理的エージェント、このエージェントを用いるインテリジェント会話システム、インテリジェント会話を制御する方法、及びそれを用いるプログラム

(57)【要約】
【課題】会話用合理的エージェントが、人間のユーザ又は他のソフトウェアエージェントである接続相手とのマルチモード対話を包括的に管理できるようにする。
【解決手段】合理的エージェントには、イベントを変換し、外部エージェントの通信活動を着信形式レコードに翻訳する解釈手段と、着信形式レコードの機能として、発信形式レコード及び合理的エージェントの行動モデルを生成する合理的ユニットと、発信形式レコードを発信イベントに変換して、外部エージェントとの合理的エージェントの通信活動を具現化する発信イベント生成手段と、が含まれる。解釈手段には、幾つかの解釈モジュールが含まれ、合理的エージェントには、入出力管理層が含まれる。入出力管理層は、着信形式レコードを互いに関係付け、このようにして互いに関係付けられた着信形式通信レコードを合理的ユニットに送出する。
【選択図】図1



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【特許請求の範囲】
【請求項1】
ソフトウェア・アーキテクチャを含む会話用合理的エージェントにおいて、少なくとも着信イベントを解釈する手段と、合理的ユニットと、発信イベントを生成する手段と、が含まれ、動作時、前記解釈手段は、着信イベントを変換して、外部エージェントの通信活動を着信形式通信レコードに翻訳するように設計されており、動作時、前記合理的ユニットは、前記着信形式通信レコードの機能として、発信形式通信レコードを生成し、また、前記合理的ユニットによって管理される前記合理的エージェントの行動モデルを生成し、更に、動作時、前記生成手段は、発信形式通信レコードを発信イベントに変換し、前記外部エージェントとの前記合理的エージェントの通信活動を具現化する前記会話用合理的エージェントであって、
前記ソフトウェア・アーキテクチャには、更に、少なくとも１つのマルチモード融合モジュールが備えられた入出力管理層が含まれ、
前記解釈手段には、複数の着信イベント解釈モジュールであって、各モジュールが特定の通信モードに専用化されている前記着信イベント解釈モジュールが含まれ、
動作時、前記マルチモード融合モジュールは、全ての着信イベントを処理し、これら着信イベントの解釈を前記様々な解釈モジュールに前記各モードの機能として転送し、
前記マルチモード融合モジュールは、同じ融合相の間、これらの解釈モジュールから収集された着信形式通信レコードを互いに関係付け、そして、このようにして互いに関係付けられた前記着信形式通信レコードを前記融合相の終了時に前記合理的ユニットに送出する、ことを特徴とする会話用合理的エージェント。
【請求項2】
請求項1に記載の会話用合理的エージェントであって、
前記融合モジュールは、もしあれば、同じ融合相で前の着信イベントにおいて以前起動されたオブジェクトのリスト、及び同じ融合相の間に前記前の解釈モジュールからの前記呼出しによって返された形式通信レコードのリストと共に、この解釈モジュールに特有な前記モードで表現された任意の着信イベントを関係する前記解釈モジュールに送信することによって着信イベントの解釈を転送することを特徴とする会話用合理的エージェント。
【請求項3】
請求項2に記載の会話用合理的エージェントであって、
前記融合モジュールによって呼び出された各解釈モジュールは、任意の新しい起動されたオブジェクトを含むように、又は前記最新の着信イベントにおいて起動された任意のオブジェクトを修正するように、完成されまた更新されたオブジェクトのリストと、形式通信レコードのリストと、を返し、同じ融合相の開始時点以来受信された全ての着信イベントによって表現された前記通信活動を翻訳することを特徴とする会話用合理的エージェント。
【請求項4】
前述の請求項のいずれか１つに記載の会話用合理的エージェントであって、前記融合モジュールには、全ての解釈モジュール及び前記融合モジュール用の読出し及び書き込みにおいてアクセス可能な融合相管理スタックが含まれることを特徴とする会話用合理的エージェント。
【請求項5】
ソフトウェア・アーキテクチャを含む会話用合理的エージェントであって、少なくとも着信イベントを解釈する手段と、合理的ユニットと、発信イベントを生成する手段と、が含まれ、動作時、前記解釈手段は、着信イベントを変換して、外部エージェントの通信活動を着信形式通信レコードに翻訳するように設計されており、動作時、前記合理的ユニットは、前記着信形式通信レコードの機能として、発信形式通信レコードを生成し、また、前記合理的ユニットによって管理される前記合理的エージェントの行動モデルを生成し、更に、動作時、前記生成手段は、発信形式通信レコードを発信イベントに変換し、前記外部

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エージェントとの前記合理的エージェントの通信活動を具現化する前記会話用合理的エージェントであって、
　前記入出力管理層には、マルチモード分裂モジュールが備えられ、
　前記生成手段には、発信イベントを生成する複数のモジュールであって、各々それに特有の通信モードに対して専用化されている前記モジュールが含まれ、
　前記マルチモード分裂モジュールは、対応するモードで発信イベントとして前記合理的ユニットによって生成された発信形式通信レコードの変換を前記異なる生成モジュールに転送し、
　前記マルチモード分裂モジュールは、これらの発信イベントの流れを管理することを特徴とする会話用合理的エージェント。
【請求項6】
請求項5に記載の会話用合理的エージェントであって、請求項1乃至4のいずれか１つと組み合わせられた会話用合理的エージェント。
【請求項7】
請求項6に記載の会話用合理的エージェントであって、
　特定モード用の前記マルチモード解釈及び生成モジュールは、このモード用の同じ処理モジュールに属することを特徴とする会話用合理的エージェント。
【請求項8】
請求項5乃至7のいずれか１つに記載の会話用合理的エージェントであって、
　前記分裂モジュールは、前記合理的ユニットによって生成された前記発信形式通信レコードを順次アドレス指定することによって発信イベントへの発信形式レコードの変換と、各々前記発信イベントの１つを表す枝に構成された完成されるツリー構造と、を前記異なる生成モジュールに転送し、
　各生成モジュールは、この生成モジュールに特有な前記モードで表現された前記発信イベント（１つ又は複数）と共に、前記ツリー構造を、それが完成した後、前記分裂モジュールに返すことを特徴とする会話用合理的エージェント。
【請求項9】
請求項8に記載の会話用合理的エージェントであって、
　前記ツリー構造は、マークアップ構造であり、
　各生成モジュールは、全ての生成モジュールに共通なタグを用いて、発信イベントにおいて起動された同じオブジェクトを識別することを特徴とする会話用合理的エージェント。
【請求項10】
請求項9に記載の会話用合理的エージェントであって、
　前記生成モジュールの少なくとも１つは、新しい処理用に前記分裂モジュールによって以前呼び出された生成モジュールを選択的に呼び出して、新しい部分的構造をそれに送信し、前記呼出し生成モジュールによって生成された前記発信イベントを含み、また、前記呼び出された生成モジュールによって以前生成された前記発信イベントをもはや含まないように設計されていることを特徴とする会話用合理的エージェント。
【請求項11】
マルチモード通信インターフェイスと関連付けられた、前述の請求項のいずれか１つに記載の少なくとも１つの会話用合理的エージェントが含まれるインテリジェント会話システム。
【請求項12】
制御される合理的エージェントと外部エージェントとの間におけるインテリジェント会話を制御するための方法において、前記制御される合理的エージェントに供給される着信イベントを、それらを着信形式通信レコードに変換することによって、解釈する段階を含む少なくとも解釈動作と、発信形式通信レコードの形態で前記着信形式通信レコードに対する適切な応答を生成する段階を含む決定動作と、発信形式通信レコードを変換して、前記外部エージェントに宛てられた発信イベントを生成する段階を含む表現動作と、が含まれ

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る前記方法であって、更に、
　切替え動作、相関動作及び相管理動作が含まれ、
　少なくとも１つの切替え動作が、この着信イベントの表現モードの機能として少なくとも１つの着信イベントを考慮する段階を含み、
　前記対応する異なるモードで表現された着信イベントを解釈する前記動作は、別々に用いられ、
　少なくとも１つの相関動作は、同じ融合相の間、異なるモードの着信イベントに対応する前記着信形式通信レコードを収集して、同じ決定動作によってこれらの着信形式通信レコードを合同処理する段階を含み、
　相管理動作が、少なくとも１つの融合相を少なくとも決定する段階を含むことを特徴とする方法。
【請求項13】
請求項12に記載の制御方法であって、
　前記相管理動作には、スタック又はオブジェクトのリストを更新して、前記融合相の閉処理を管理する少なくとも１つの動作であって、解釈動作の間、少なくとも１つの新しいオブジェクトを選択的に前記スタックに記憶し、前記融合相の終了前に、少なくとも１つの新しいイベントの前記予想された出現を示す段階と、前記対応する予想されるイベントが、前記融合相の終了前にもはや予想されない場合、解釈動作の間、前記スタックから１つ又は複数のオブジェクトを選択的に除去する段階と、を含む前記動作が含まれることを特徴とする方法。
【請求項14】
請求項1に記載の制御方法であって、
　前記相管理動作には、更に、解釈動作の間、前記スタックの全てのオブジェクトを選択的に閲覧する段階を含むスタック閲覧動作が含まれることを特徴とする方法。
【請求項15】
請求項14に記載の制御方法であって、
　前記相管理動作には、更に、前記スタックから遅延タイプオブジェクトを選択的に除去し、この遅延の期間に対するタイムアウトを設定し、この遅延が経過した時、前記スタックを閲覧する段階を含むタイミング動作が含まれることを特徴とする方法。
【請求項16】
請求項15に記載の制御方法であって、
　前記相管理動作には、更に、前記スタックが空である場合、前記解釈動作の後、前記融合相を終了する段階を含む前記融合相を閉じる動作が含まれることを特徴とする方法。
【請求項17】
制御される合理的エージェントと外部エージェントとの間におけるインテリジェント会話を制御するための方法において、前記制御される合理的エージェントに供給される着信イベントを、それらを着信形式通信レコードに変換することによって、解釈する段階を含む少なくとも解釈動作と、発信形式通信レコードの形態で前記着信形式通信レコードに対する適切な応答を生成する段階を含む決定動作と、発信形式通信レコードを変換して、前記外部エージェントに宛てられた発信イベントを生成する段階を含む表現動作と、が含まれる前記方法であって、更に、
　対応する異なる出力モードに関連する表現動作を少なくとも前記発信形式通信レコードに順次適用する段階と、各々前記発信イベントの１つを表現する枝で構成されたツリー構造を生成し、各表現動作が、この表現動作に特有なモード情報を備えたこのツリー構造を完成する段階と、を含む連接動作が含まれることを特徴とする方法。
【請求項18】
請求項17に記載の制御方法であって、
　前記連接動作は、タグを備えたツリー構造を生成し、
　異なる対応する出力モードに関連する少なくとも幾つかの前記表現動作が、共通タグを用いて、発信イベントにおいて起動された同じオブジェクトを起動することを特徴とする

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方法。
【請求項19】
請求項17及び18のいずれかに記載の制御方法であって，
各表現動作は、同じ連接動作の間に既に呼び出された他の表現動作を呼び出すように設計されており、また、構築される前記ツリー構造において、この他の表現動作によって以前生成された発信イベントをこの他の表現動作によって修正させるように設計されていることを特徴とする方法。
【請求項20】
コンピュータプログラムであって、
このプログラムがそれを対象にしたコンピュータ設備にインストールされた場合、請求項12乃至19のいずれか１つに基づく前述の方法を実現するためのプログラム命令を含むコ
【発明の詳細な説明】。
【技術分野】
【0001】
本発明は、一般的に、通信方法の自動化に関する。
【0002】
特に、その第１の側面によれば、本発明は，ソフトウェア・アーキテクチャが含まれる会話用合理的エージェントに関する。ソフトウェア・アーキテクチャには、少なくとも着信イベントを解釈する手段と、合理的ユニットと、発信イベントを生成する手段とが含まれる。解釈手段は、動作時、着信イベントを変換し、外部エージェントの通信活動を着信形式通信レコードに翻訳するように設計されており、合理的ユニットは、動作時、着信形式通信レコードの機能としての発信形式通信レコードと、合理的ユニットによって管理される合理的エージェントの行動モデルとを生成し、更に、動作時、生成手段は、発信形式通信レコードを発信イベントに変換し、外部エージェントとの合理的エージェントの通信活動を具現化する。
【背景技術】
【0003】
このタイプの合理的エージェントは、当業者には公知であり、本出願人による基本特許EP2787902に記載されている。
【0004】
この基本特許に提示す手法は、インテリジェント会話システムとユーザとの間の対話文脈において、又は、インテリジェント会話システムと幾つかのエージェントを備えたインテリジェント会話システムにおける他のソフトウェアエージェントとの間の対話文脈の双方において、合理的エージェントによって自然言語で用いられるインテリジェント会話システムに関する。
【0005】
第１の場合、会話は、自然言語で行われ、他方，第２の場合，上記特許において開示された頭字語“ArCOL”で知られている言語やエージェントの国際標準化団体FIPA(Foundation_for_Intelligent_Physical_Agents)コンソーシアムによって開発された頭字語“FIPA-ACL”で知られる言語等の形式論理言語で直接行い得る。このコンソーシアムに関する情報は、インターネットサイト“http://www.fipa.org”にある。
【0006】
しかしながら、上述した基本特許は、幾つかのやり方で、例えば、彼又は彼女の自然言語で及びボタンを押すこと及び／又は具体的な手話を行うことの双方によって、少なくとも外部エージェントがそれ自体を表現し得る会話を行う具体的な手段を規定していない。
【0007】
しかしながら，自動合理的エージェントと外部エージェント、例えば、人間のユーザとの間における会話を可能にし、非言語的なモードを用いて(言い換えると、自然言語を用いないで、例えば、手話又は触覚型のインターフェイスを介して)、あるいは、幾つかの異なるモードを同時に及び／又は連続的に用いて彼自身を表現し、各通信モードが、書面

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によるメッセージ、口頭メッセージ、イントネーション、図、手話、タッチ感知情報等の場合のように、特定の情報チャネルに関連付けられるように、マルチモード会話の様式化が試みられて来た。

【0008】

ユーザは、従って、適切なインターフェイスを用いて、音声及び手話によって、彼自身を同時に表現し得るが、合理的エージェントもまた、それ自体を表現する幾つかの異なるモードを用いて、その応答をユーザに行い得ることを理解されたい。

【0009】

このようなマルチモード対話には、２つの動作、即ち、マルチモード融合及びマルチモード分裂を用いることが必要である。

【0010】

マルチモード融合は、これによって、インテリジェント会話システムへの入力における１つ又は複数のマルチモードイベント解釈構成要素が、感知されたメッセージの意味規則の統一表現を生成する動作である。

【0011】

マルチモード分裂は、外部エージェントが彼自身を表現するやり方とは独立に幾つかの異なるモードで合理的エージェントがそれ自体を表現する必要がある場合だけ要求され、二重マルチモード融合動作であり、また、１つ又は複数のマルチモードイベント生成構成要素の場合、前記イベントを生成し、合理的エージェントの合理的ユニットによって生成されたメッセージの意味論的表現を表す段階を含む。

【0012】

マルチモード会話を様式化する試みには、機能的なアーキテクチャが欠如した状態で、EMMA(拡張可能なマルチモード注釈マークアップ言語)と称され、また、XML言語に関連付けられたマークアップ言語に基づき、対話システムのマルチモード入出力を表現するためのツールを提示したW3C標準化機関のMMIグループによって行われた仕事が含まれるが、例外は、既存のツールが入力だけを表現し得ることである。

【0013】

更に、言及に値するのは、MMIグループと連携したW3C機関における音声XMLグループによって行われた仕事、記述的な要素をマルチモードコンテンツに追加するためのメカニズムを提供するMPEG-7プロジェクトやマルチモード対話用の標準フレームワークを提示する目的を備えたMPEG-21プロジェクトを立ち上げたMPEGコンソーシアムによって行われた仕事である。

【0014】

しかしながら、多くのシステムがマルチモード融合及び／又は分裂構成要素を用いるにも関わらず、これらの構成要素は、通常、幾つかの媒体処理能力の実験的集大成の結果であり、所定のソフトウェア・アーキテクチャを用いた結果ではない。

【0015】

特に、MMIグループによって行われた仕事は、マルチモード入出力流れを表すためのツールを記述するが、構成要素を系統立てるための抽象的アーキテクチャ（参考：W3Cマルチモード対話フレームワーク、W3Cメモ、2003年５月6日、http://www.w3.org/TR/2003/NOTE-mmi-framework-20030506/）を伴う。しかしながら、この仕事は、マルチモード入力の解釈用の、あるいは、合理的インテリジェント会話エージェントによるマルチモード出力の生成用の何らかの具体的なメカニズムにはまだ至っていない。

【発明の開示】

【発明が解決しようとする課題】

【0016】

この文脈において、また、上記特許FR2787902が、ユーザとインテリジェント会話システムとの間おける自然言語の使用(理解及び生成)や、ソフトウェアエージェント間（それらの１つは、インテリジェント会話システムであってよい）におけるArCOL又はFIPA-ACL等の形式通信言語の使用に基づき、対話だけを考慮する一方で、本発明の主な目的は、会

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話用合理的エージェントが、人間のユーザ又は他のソフトウェアエージェントであり得るその接続相手とのマルチモード対話を包括的に管理できるようにするソフトウェア・アーキテクチャを提示することである。

【課題を解決するための手段】

【0017】

この目的を達成するために、本発明による会話用合理的エージェントは、上記序文において与えられた包括的な定義に適合する。本会話用合理的エージェントは、そのソフトウェア・アーキテクチャに、更に、少なくとも１つのマルチモード融合モジュールが備えられている入出力管理層が含まれることを本質的に特徴とする。また、解釈手段には、複数の着信イベント解釈モジュールであって、各モジュールが特定の通信モードに専用化されている着信イベント解釈モジュールが含まれることを特徴とする。また、動作時、マルチモード融合モジュールは、全ての着信イベントを処理し、これら着信イベントの解釈を様々な解釈モジュールに各モードの機能として転送することを特徴とする。マルチモード融合モジュールは、同じ融合相の間、これらの解釈モジュールから収集された着信形式通信レコードを互いに関係付け、そして、このようにして互いに関係付けられた着信形式通信レコードを融合相の終了時に合理的ユニットに送出することを特徴とする。

【0018】

好適には、融合モジュールは、もしあれば、同じ融合相で前の着信イベントにおいて以前起動されたオブジェクトのリスト、及び同じ融合相の間に前の解釈モジュールからの呼出しによって返された形式通信レコードのリストと共に、この解釈モジュールに特有なモードで表現された任意の着信イベントを関係する解釈モジュールに送信することによって着信イベントの解釈を転送する。

【0019】

これを達成するために、融合モジュールによって呼び出された各解釈モジュールは、任意の新しい起動されたオブジェクトを含むように、又は最新の着信イベントにおいて起動された任意のオブジェクトを修正するように、完成されまた更新されたオブジェクトのリストと、形式通信レコードのリストと、を返し、同じ融合相の開始時点以来受信された全ての着信イベントによって表現された通信活動を翻訳する。

【0020】

利点として、融合モジュールには、全ての解釈モジュール及び融合モジュールに対する読出し及び書き込みにおいてアクセス可能な融合相管理スタックが含まれる。

【0021】

対称的に、本発明は、更に、ソフトウェア・アーキテクチャを含む会話用合理的エージェントに関する。会話用合理的エージェントには、少なくとも着信イベントを解釈する手段と、合理的ユニットと、発信イベントを生成する手段と、が含まれる。動作時、解釈手段は、着信イベントを変換して、外部エージェントの通信活動を着信形式通信レコードに翻訳するように設計されている。動作時、合理的ユニットは、着信形式通信レコードの機能として、発信形式通信レコードを生成し、また、合理的ユニットによって管理される合理的エージェントの行動モデルを生成し、更に、生成手段は、発信形式通信レコードを発信イベントに変換し、外部エージェントに関する合理的エージェントの通信活動を具現化する。このエージェントの特徴は次の通りである。即ち、入出力管理層には、マルチモード分裂モジュールが備えられ、生成手段には、発信イベントを生成する複数のモジュールであって、各々それに特有の通信モードに対して専用化されているモジュールが含まれる。また、マルチモード分裂モジュールは、対応するモードで発信イベントとして合理的ユニットによって生成された発信形式通信レコードの変換を異なる生成モジュールに転送し、マルチモード分裂モジュールは、これらの発信イベントの流れを管理する。

【0022】

例えば、分裂モジュールは、異なる生成モジュールに対して、合理的ユニットによって生成された発信形式通信レコードを順次アドレス指定することによって発信イベントへの発信形式レコードの変換と、各々発信イベントの１つを表す枝に構成された完成されるツ

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リー構造と、を転送する。各生成モジュールは、次に、この生成モジュールに特有なモードで表現された発信イベント（１つ又は複数）と其に、ツリー構造を、それが完成した後、分裂モジュールに返す。

【0023】

好適には、ツリー構造は、マークアップ構造であり、各生成モジュールは、全ての生成モジュールに共通なタグを用いて、発信イベントにおいて起動された同じオブジェクトを識別する。

【0024】

更に、有用なことは、生成モジュールの少なくとも１つが、新しい処理用に分裂モジュールによって以前呼び出された生成モジュールを選択的に呼び出して、新しい部分的構造をそれに送信し、呼出し生成モジュールによって生成された発信イベントを含み、また、呼び出された生成モジュールによって以前生成された発信イベントをもはや含まないように設計されていることである。

【0025】

合理的エージェントが、マルチモード融合モジュール及び分裂モジュールを含む場合。特別なモード用のマルチモード解釈及び生成モジュールは、好適には、このモード用の同じ処理モジュールに属する。

【0026】

本発明は、更に、マルチモード通信インターフェイスと関連付けられた、上記規定されたもののような少なくとも１つの会話用合理的エージェントが含まれるインテリジェント会話システムに関する。

【0027】

本発明は、更に、制御される合理的エージェントと外部エージェントとの間におけるインテリジェント会話を制御するための方法に関する。この方法には、制御される合理的エージェントに供給される着信イベントを、それらを着信形式通信レコードに変換することによって、解釈する段階を含む少なくとも解釈動作と、発信形式通信レコードの形態で着信形式通信レコードに対する適切な応答を生成する段階を含む決定動作と、発信形式通信レコードを変換して、外部エージェントに宛てられた発信イベントを生成する段階を含む表現動作と、が含まれる。この方法には、更に、切替え動作、相関動作及び相管理動作が含まれることを特徴とし、少なくとも１つの切替え動作が、この着信イベントの表現モードの機能として少なくとも１つの着信イベントを考慮する段階を含む。また、対応する異なるモードで表現された着信イベントを解釈する動作は、別々に用いられる。更に、少なくとも１つの相関動作は、同じ融合相の間、異なるモードの着信イベントに対応する着信形式通信レコードを収集して、同じ決定動作によってこれらの着信形式通信レコードを合同処理する段階を含む。また、相管理動作が、少なくとも１つの融合相を少なくとも決定する段階を含む。

【0028】

例えば、相管理動作には、スタック又はオブジェクトのリストを更新して、融合相の閉処理を管理する少なくとも１つの動作であって、解釈動作の間、１つ又は複数の新しいオブジェクトを選択的にスタックに記憶し、融合相の終了前に、１つ又は複数の新しいイベントの予想された出現を示す段階と、対応する予想されるイベントが、融合相の終了前にもはや予想されない場合、解釈動作の間、スタックから１つ又は複数のオブジェクトを選択的に除去する段階と、を含む動作が含まれる。

【0029】

更に、相管理動作には、解釈動作の間、スタックの全てのオブジェクトを選択的に閲覧する段階を含むスタック閲覧動作が含まれる。

【0030】

相管理動作には、更に、スタックから遅延タイプオブジェクトを選択的に除去し、この遅延の期間に対するタイムアウトを設定し、この遅延が経過した時、スタックを閲覧する段階を含むタイミング動作を含み得る。

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【0031】
相管理動作には、スタックが空である場合、解釈動作の後、融合相を終了する段階を含む融合相を閉じる動作が含まれる。
【0032】
本発明は、更に、制御される合理的エージェントと外部エージェントとの間におけるインテリジェント会話を制御するための方法に関する。本方法には、制御される合理的エージェントに出力される着信イベントを、それらを着信形式通信レコードに変換することによって、解釈する段階を含む少なくとも解釈動作と、発信形式通信レコードの形態で着信形式通信レコードに対する適切な応答を生成する段階を含む決定動作と、発信形式通信レコードを変換して、外部エージェントに宛てられた発信イベントを生成する段階を含む表現動作と、が含まれる。本方法には、更に、対応する異なる出力モードに関連する表現動作を少なくとも発信形式通信レコードに順次適用する段階と、各々発信イベントの１つを表現する枝で構成されたツリー構造を生成し、各表現動作が、この表現動作に特有なモード情報を備えたこのツリー構造を完成する前記段階と、を含む連接動作が含まれることを特徴とする。
【0033】
好適には、連接動作は、タグを備えたツリー構造を生成し、異なる対応する出力モードに関連する少なくとも幾つかの表現動作が、共通タグを用いて、発信イベントにおいて起動された同じオブジェクトを起動する。
【0034】
各表現動作は、更に、同じ連接動作の間に既に呼び出された他の表現動作を呼び出すように設計されており、また、構築されるツリー構造において、この他の表現動作によって以前生成された発信イベントをこの他の表現動作によって修正させるように設計し得る。
【0035】
最後に、本発明は、コンピュータプログラムに関し、このコンピュータプログラムには、このプログラムがそれを対象にしたコンピュータ設備にインストールされた場合、上記規定された方法を実現するためのプログラム命令が含まれる。
【発明を実施するための最良の形態】
【0036】
本発明の他の特徴及び利点は、制限するためではなく手引のために与えられた次の説明を添付図を参照して解読すると明らかになるであろう。
【0037】
前述したように、本発明は、マルチモード対話システムの分野に存し、特に、システム入力におけるマルチモードイベントの解釈のための構成要素(融合構成要素)及び出力におけるマルチモードイベントの生成のための構成要素(分裂構成要素)に存する。
【0038】
この文脈において、本発明は、マルチモード対話のための上述した基本特許において述べた形式アーキテクチャを用いるソフトウェア・アーキテクチャを提示する。
【0039】
図1に示すように、このアーキテクチャには、以下が含まれる。
・会話用合理的エージェント内において、着信イベントの処理及び発信イベントの生成を統率する入出力管理層(以下参照)。
・多数の処理モジュールであって、各々それに特有の対話モードに関連付けられ、また、このモードにおいて表現されるイベントを処理する処理モジュール。用いられるこのタイプのモジュールの選択は、合理的エージェントが対話する必要のあるユーザ又はソフトウェアエージェントインターフェイスにおいて利用可能な異なる通信モードに直接依存する。
・上述した基本特許において述べたもののような合理的ユニットであって、このエージェントの形式モデル公理による論理的推測によって、合理的エージェントの反応を計算する機能を有する合理的ユニット。

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・上記基本特許において述べた知識ベース及び対話履歴であって、上述した入出力管理層、合理的ユニット及び処理モジュールによってアクセスし得る知識ベース及び対話履歴。
・上記基本特許において述べたものなどのような理解及び生成モジュールであって、必要ならば、言語モードに関連付けられている(例えば、音声認識又はキーボード上でのユーザによるメッセージ入力から生じる)イベントを処理するためのモジュールによって用いられる理解及び生成モジュール。

【0040】

この新しいアーキテクチャの中心的な要素は、合理的エージェントの外部におけるイベントの繰り返し及び送信、並びにエージェント内におけるこれらのイベントの処理及び異なるモジュール間におけるそれらの配信を統率する入出力管理層である。

【0041】

この処理は、３つのステップ即ち相で構成され、マルチモード融合相、推論相及びマルチモード分裂相が含まれる。

【0042】

マルチモード分裂相の間、全ての着信イベントは、解釈され、これらのイベントを送信した外部エージェント、即ち、人間のユーザ又は他のソフトウェアエージェントによって実現された通信レコードを形式的に表す形式通信レコードのリストを形成する。これらのレコードは、上記基本特許において用いられるもののような(アーティミス(Artimis)通信言語の場合、ArCoLと称される)形式論理言語により、あるいは、ArCoL言語に基づきFIPAコンソーシアムによって規格化された言語であるFIPA-ACL言語のような形式論理言語で表現される。

【0043】

推論相の間、形式通信レコードは、形式通信レコードの新しいリストの形態で、会話用合理的エージェントの適切な反応を計算する合理的ユニットに送信される。この計算は、当業者に公知の上記特許における情報を用いて行われる。言い換えると、合理的エージェントの形式行動モデルの公理に基づき、論理的推測によって行われる。

【0044】

最後に、マルチモード分裂相の間、合理的ユニットによって以前生成された形式通信レコードは、外部エージェント(ユーザ又はソフトウェアエージェント)とのマルチモード通信インターフェイスにおいて利用可能な異なるモード用のイベントに変換される。

【0045】

合理的エージェントと他のソフトウェアエージェントとの間における対話だけを想定する特別な場合(従って、他のソフトウェアエージェントが人間のユーザではない場合)、FIPA-ACL等の形式エージェント間通信言語で表現されるメッセージの解釈及び生成に関連するイベントを処理するためのモジュールが、このソフトウェア・アーキテクチャに移植される。インテリジェント会話システムを用いる合理的エージェントの観点から見れば、このような言語を用いて他のエンティティと通信を行うことは、この場合、特別なモード上での対話であると理解される。

【0046】

入出力管理層によって用いられるマルチモード融合メカニズムについては、特に、図2を参照して説明する。

【0047】

合理的エージェントに宛てられた着信イベントは、合理的エージェントが外部エージェント(ユーザ又は他のソフトウェアエージェント)と会話を行う際に介するマルチモードインターフェイスを介して、モード毎に、別々に送信される。例えば、ユーザがフレーズを発声しながらクリックする場合、２つのソースが、合理的エージェントに送信されるイベントを生成する。即ち、最初に、クリックを感知するユーザインターフェイスのタッチモード、そして、次に、音声検出及び認識を実現する音声モードを生成する。

【0048】

入出力管理層によって受信される各着信イベントは、対応するモードに関連する処理モ

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ジュールに送信される。前述の例において、合理的エージェントは、一方はタッチモードに関連するイベント用に、他方は、音声モードに関連するイベント用に、２つの処理モジュールを有さねばならない。

【0049】

一般的に、モードに関連する各処理モジュールは、“モジュール”とも称する２つの機能から構成されている。即ち、後で説明するように、マルチモード融合相の間に呼び出される着信イベントを解釈する機能と、マルチモード分裂相の間に呼び出される発信イベントを生成する機能とから構成されている。

【0050】

従って、着信イベントは、このイベントが生成するモードに関連する処理モジュールの解釈機能によって処理される。

【0051】

この解釈機能は、３つの引数を受信する。即ち、

・着信イベントEVTそれ自体。

・同じ融合相の間に前の着信イベントにおいて既に述べられたオブジェクトのリストLIST_OBJS(これらのオブジェクトは、前の着信イベントを繰り返す間に呼び出された解釈機能によって識別される)。このリストは、現マルチモード融合相に対する最初の呼出しの時点では空である。

・同じ融合相の間に最新の解釈機能に対する呼出しによって返された形式通信レコードのリストLIST_ACTS。このリストは、現マルチモード融合相に対する最初の呼出しの時点で空である。

【0052】

呼び出された解釈機能は、これら２つの要素を用いて、２つの結果を返さなければならない。即ち、

・着信イベントEVTのコンテンツ中で起動されたオブジェクトによって完成されまた更新し得る既に述べたオブジェクトの前のリストLIST_OBJS。リストに付加された新しい各オブジェクトに対して、このオブジェクトの内部表現が、提示されたソフトウェア・アーキテクチャにおける全てのモジュールによって共有される対話の履歴に生成される(特に、これらの表現は、形式通信レコードにおいて用い得ると共に他のモード及び合理的ユニットに関連する処理モジュールにアクセス可能にし得る)。

・融合相の始まり以来受信された全てのイベント(現在処理中のイベントEVTを含む)の通信又は発話内の力を表す形式通信レコードのリストLIST_ACTS。このリストは空である可能性もあるが、このことは、全ての受信イベントが、通信インターフェイス上における外部エージェントのアクションの満足な解釈を与えられないことを示す。このリストの構造は、解釈機能によってなされる評価に全体的に依存し、特に、最新の解釈機能に対する呼出しによって返されたリストを必ずしも含まない。本解釈方法は、現融合相の異なる解釈機能にこれまで送信された全ての情報を表すリストを構築しなければならない。これは、前の対話の文脈に敏感であり、また、対話履歴に記憶された情報を用いなければならない。

【0053】

従って、入出力管理層は、現融合相を終了するか否か判断するために(用いられる会話アプリケーションに依存し得る)特別なアルゴリズムを有さねばならない。言い換えると、このアルゴリズムは、合理的ユニットが反応計算にトリガをかける前に着信イベントを待つことが必要か否かを知る質問に答えなければならない。

【0054】

このアルゴリズムが、他の着信イベントが到着することを示す場合、入出力管理層は、次の着信イベントを待ち、そして、上述したように、このイベントに関連する解釈機能を呼び出す。

【0055】

一方、アルゴリズムが、待つべき着信イベントがもはやないことを示す場合、融合相が終了し、最新の解釈機能に対する呼出しによって返された形式通信レコードのリストは、

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合理的ユニットに送信される。

【0056】

本発明において提示された基本アルゴリズムは、用いられる会話アプリケーションの機能として調整し得るが、スタックの維持に基づき、入出力管理層のマルチモード融合メカニズムによる融合相の停止を管理する。このスタックは、融合相の開始時点で空にされ、そして、最初の着信受信イベントに対応する解釈機能が呼び出される。融合は、解釈機能に対する呼出しから戻った際、スタックが空になり次第終了する。

【0057】

このスタックは、融合相を終了する前に予想される異なるイベントを表すオブジェクトのリストを実際に含む。これらのオブジェクトは、予想されるイベントをある程度の精度で記述し得る。最も一般的なオブジェクトは、如何なるイベントも明示する。更に特殊なオブジェクトは、特別なモード用の処理モジュールによって処理される予定の如何なるイベントも明示する。他の更に特殊なオブジェクトは、特別なモード等の処理モジュールによって処理されるイベント中の特別なイベントを明示する。

【0058】

例えば、任意のイベントを明示するオブジェクトは、スタックに記憶し得る。タッチモードに適用可能な任意のイベントを明示するオブジェクト、“クリック”タイプタッチモードに適用可能なイベントを明示するオブジェクト、“クリック/ボタン押下”タイプタッチモードに適用可能なイベント、また、この場合、“クリック/ボタン解除”タイプタッチモードに適用可能なイベントは、最初の３つのオブジェクトに対応するが、第４番目には対応しない。特別な“遅延”タイプオブジェクトは、更に、イベントが、示された遅延内において可能であることを示す。この遅延によって、合理的エージェントは、可能な追加のイベントを待ち、この相が完全に閉じられる前に現融合相において考慮し得る。

【0059】

スタックは、次のように、読出し及び書き込み時、全ての解釈機能にアクセス可能にし得る。

・解釈機能（又はモジュール）は、新しいオブジェクトをスタックに記憶して、融合を閉じる前に或るイベントを待つことが必要なことを示し得る。

・解釈機能（又はモジュール）は、スタックから１つ又は複数のオブジェクトを除去して、対応する予想イベントがもはや融合を終了する必要がないことを示し得る。

・解釈機能（又はモジュール）は、スタックにある全てのオブジェクトを閲覧して、融合を終了し得る前に、将来のどのイベントが予想されるか決定し得る。

【0060】

着信イベントEVTが受信されると、入出力管理層は、上述したように、適切な解釈機能を呼び出す前に、このイベントを満足する記述を備えた最初のオブジェクトをスタックから除去する。

【0061】

この機能が実行された後、

・スタックが空である場合、閉処理アルゴリズムは、融合が終了されることを示す。

・スタックが“遅延”オブジェクトを含む場合、入出力管理層は、このオブジェクトをスタックから除去し、このオブジェクトによって示された時間によりタイムアウトを設定し、こうして、この遅延が一旦経過すると、入出力管理層は、スタックをもう一度調べて、融合が終了されるか否か決定する。タイムアウトが設定された後、また、対応する遅延の終了前に受信されたいずれかの着信イベントが、このタイムアウトをキャンセルする。

・そうでない場合、閉処理アルゴリズムは、融合が終了していないこと、及び、他の着信イベントを待つべきであることを示す。

【0062】

一旦融合相が終了されると、次に、合理的ユニットは、上記基本特許において述べた当業者に公知の原理に基づき、合理的エージェントの反応を計算する。

【0063】

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「例」
レストラン検索アプリケーションにおいて、この場合人間のユーザである外部エージェントには、インテリジェント会話システムを照会するためのタッチ及び音声インターフェイスが提供される。ユーザが、文“私は、この地域のイタリアン・レストランを探しているところです”と発声し、また、同時に、彼又は彼女が、例えば、マウスクリックによって、又は彼又は彼女の指でタッチすることのいずれかによって、エッフェル塔を表す画面上でその地域を明示するものとする。

【0064】
ユーザインターフェイスの音声モードは、イベントを合理的エージェントに送り、音声検出(“ユーザが話し始めていること”)を示すことによって始まる。そして、入出力管理層は、次の引数で音声モード解釈機能を呼び出す。
・“ユーザが話し始めている”着信イベントEVT。
・既に起動されたオブジェクトのリストLIST_OBJS(融合相が始まったばかりであるため、しばらくの間は空)。
・解釈機能に対する最新の呼出しによって返された形式通信レコードのリストLIST_ACTS(融合相が始まったばかりであるため、しばらくの間は空)。

【0065】
この段階において、音声モード解釈機能は、如何なる意味論的解釈もこのイベントに関連付けることはできないが、音声モードに適用可能な“音声認識結果”タイプイベントが後で到着することが分っている。従って、この機能は、オブジェクトを融合相閉処理管理スタックに記憶して、このタイプのイベントを待つ必要があることを示し、そして、以前起動されたオブジェクトリスト及び空の形式通信レコードリストを返す。

【0066】
入出力管理層は、スタックのコンテンツを調べることによって、その融合相閉処理アルゴリズムを適用する。スタックがイベントタイプオブジェクトを含むことから、融合は、完全ではなく、それ自体を新しい着信イベントの待機処理に投入する。

【0067】
そして、インターフェイスのタッチモードは、着信イベントを合理的エージェントに送り、“エッフェル塔をクリックせよ”を示す。このイベントタイプは、融合相の閉処理管理スタックに含まれないことから、入出力管理層は、スタックを修正せず、次の引数でタッチモード解釈機能を呼び出す。
・“エッフェル塔をクリックせよ”着信イベント。
・以前起動されたオブジェクトの空のリスト。
・音声モード解釈機能に対する最新の呼出しによって返された形式通信レコードの空のリスト。

【0068】
そして、タッチモード解釈機能は、“エッフェル塔”オブジェクトに対する位置タイプ参照を認識し、対話履歴の適切な構造でこのオブジェクトを生成し、そして、“エッフェル塔”オブジェクトだけを含むオブジェクトのリストLIST_OBJSと、形式通信レコードのリストLIST_ACTSとを返す。このレコードリストは、現会話の文脈におけるユーザメッセージの解釈に対応しなければならないが、更なる着信イベントは存在しないと仮定する。例えば、会話がちょうど始まった場合、このリストは、識別された“エッフェル塔”オブジェクト付近に位置するレストランに適用可能な“問合せ・照会”タイプレコードに縮小し得るが、ここで、合理的エージェントは、更に情報が入力されない場合、クリックをクリックによって明示されたその地域のレストラン検索要求であると解釈する。他の文脈において、例えば、インテリジェント会話システムが、ユーザに彼がたった今どこにいるかちょうど尋ねた場合、このリストは、“通知”タイプレコードに縮小して、ユーザが、識別された“エッフェル塔”オブジェクトの近くにいることを示し得る。融合相閉処理管理スタックは、他のイベントが予想されることを既に示していることから、タッチモード解釈機能は、それを修正しない。

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【0069】
そして、ユーザインターフェイス音声モードは、“音声認識結果”タイプの“私は、この地域のイタリアン・レストランを探しているところです”着信イベントを合理的エージェントに送る。このイベントタイプは、融合相関処理管理スタックに含まれることから、入出力管理層は、それを除去し(従って、スタックは空である)、そして、次の引数で音声モード解釈機能を呼び出す。
・“私は、この地域のイタリアン・レストランを探しているところです”着信イベント。
・“エッフェル塔”オブジェクトを含む以前起動されたオブジェクトのリスト。
・タッチモード解釈機能に対する最新の呼出しによって返された形式通信レコードのリスト、例えば、“問い合わせ・照会”又は“通知”タイプレコード。
【0070】
そして、音声モード解釈機能は、“特殊分野”タイプの“イタリアン”オブジェクトにリンクされたレストランタイプオブジェクト及び“位置”タイプの(不明)オブジェクトに関する質問を認識する。音声モード解釈機能は、以前起動されたオブジェクトのリストを調べ、そして、リストに与えられた“位置”タイプの“エッフェル塔”タイプオブジェクトに対して、それが識別した“位置”タイプの不明オブジェクトを認識する。新しいオブジェクトを生成し、また、対話履歴の適切な構造で既に起動されたオブジェクトを修正した後、音声モード解釈機能は、“位置”タイプの“エッフェル塔”オブジェクトと、“レストラン”タイプの(不明)オブジェクトと、“特殊分野”タイプの“イタリアン”オブジェクトとから構成されるオブジェクトが配列されたリストと、例えば、“イタリアン”特殊分野を有する“エッフェル塔”タイプオブジェクトの近くに位置するレストランに適用可能な“問い合わせ・照会”タイプの単一のレコードから構成される形式通信レコードのリストと、を返す。この解釈機能は、いずれか他の着信イベントを待ってはいないことから、融合相関処理管理スタックを修正しない。
【0071】
この機能の実行後、入出力管理層は、スタックを調べ、スタックがその時点で空であることから、マルチモード相が終了されていると結論付けて、最新の解釈機能に対する呼出しによって返された解釈済形式通信レコード(この場合、単一の“問い合わせ・照会”タイプレコード)のリストを合理的ユニットに送信する。
【0072】
当業者が認識されるように、最新の２つの着信イベント(即ち、クリック及び音声認識結果)が、逆の順番で合理的エージェントによって受信されていたとすれば、この方法もまた、それらを処理できたであろう。最初のステップにおいて、音声モード解釈機能は、“レストラン”タイプの(不明)オブジェクトと、特殊分野”タイプの“イタリアン”オブジェクトと、“位置”タイプの“不明”オブジェクトと、から構成される起動されたオブジェクトのリストと、“上記と同じ“問い合わせ・照会”タイプレコードから構成される形式通信レコードのリストと、を送信したであろう。照会内容“この地域の”により他のアクションがユーザによって指定されたと判断した後、この解釈機能は、融合相関処理管理スタックにおいて、(任意のタイプの)他の着信イベントが予想されることを示したであろう。第２のイベントにおいて、タッチモード解釈機能は、以前起動されたオブジェクトのリストに存在する(不明)“位置”タイプオブジェクトに対して、それが特定した“位置”タイプの“エッフェル塔”オブジェクトを識別したであろう。従って、融合相の最終的な結果は、同じだったであろう。
【0073】
入出力管理層によって用いられるマルチモード分裂メカニズムについて、特に、図3を参照して記述する。
【0074】
上述したように、マルチモード分裂メカニズムは、合理的ユニットによって生成された形式通信レコードから始まって、異なるユーザインターフェイスモード、又は合理的エージェントと接続している外部ソフトウェアエージェントに宛てられた発信イベントの流れ

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の構築に対して責任を負う。この構築は、各枝が、生成された発信イベントの１つを均一に表現するツリー構造に基づく。

【0075】

便宜的に、各第１レベルタグがモードの情報を表し、これらの各情報項目が、対応するモードに特有な(必要に応じた数の深さレベルを備えた)下位レベルタグにそれ自体組み入れられるXMLタイプのマークアップ構造を選択するのは良いと思われる。

【0076】

幾つかの点では、XML構造の選択は、W3C規格化機関のMMXグループによって標準化されたEMMA(拡張可能なマルチモード注釈)マークアップ言語等のマルチモードイベントを処理するための言語の使用に類似し得るが、公知のアーキテクチャの現バージョンは、マルチモード入力だけを表し得ることを想起することが重要であり、また、本発明の主たる顕著な特徴は、異なるモードに関連するイベント処理のための別々のモジュールにおけるその構成であり、また、その最も完全な形態において、それらの生成機能の編成によることを強調することが重要である。

【0077】

マルチモード分裂相の開始時点において、入出力管理層は、空の部分的構造STRUCTを初期化するが、この構造は、マルチモード分裂相の間にその時点まで積み上げられた発信イベントの流れのコンテンツを表す。

【0078】

この原理は、次に、合理的ユニットによって生成された形式通信レコードのLIST_ACTSリスト及び現部分的構造STRUCTを、出力に利用可能な各モードに関連する処理モジュールの各発信イベント生成機能、即ち、モジュールに送信することである。

【0079】

これらの各生成機能即ちモジュールは、次に、対応するモード用の発信イベントの記述が完成した新しい部分的構造STRCTを返す。マルチモード分裂相の終了時点において、入出力管理層が全ての利用可能な出力モード処理モジュールを呼び出した場合、最新の返された部分的構造は、合理的エージェントによって、通信インターフェイスを介して、その接続先(ユーザ又は他のソフトウェアエージェント)に効果的に送信される発信イベントの完全な流れを表す。

【0080】

マークアップ構造STRUCTの形態での発信イベント流れの構築全体において、対応する可能な異なる出力モードに関連する生成機能は、出力イベントにおいて、参照されたオブジェクトを識別する。

【0081】

結果的に、生成機能が、既に他のモードで起動されたオブジェクトを起動する出力イベントを構築する必要がある場合、時系列的に２番目の生成機能は、このイベントの生成形態に適合して、この状況を考慮し得る。例えば、２番目の生成機能が、自然言語を用いる表現モードに関連付けられている場合、２番目に起動されたオブジェクトは、単に、完全な表現によってではなく代名詞によって指定し得る。

【0082】

この分裂手法は、極めて簡単であるという利点を有するという事実とは別に、異なるモードに送信される表現が同期化される可能性がある極めて多くの事例を処理し得るという利点を有する。

【0083】

一方、これは、入出力管理層が各出力モード用の生成機能を呼び出す順番に完全に依存する。この不利な点の発生を防止するために、各生成機能は、入出力管理層によって既に呼び出された、従って、部分的構造STRUCTに痕跡を残した生成機能をそれ自体呼び出し得るようにすべきであり、新しい部分的構造が、呼出し生成機能によって生成されたイベントを含み、また、呼び出された生成機能によって以前生成されたイベントをもはや含まないようにすべきである。

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【0084】
この説明において提示されたマルチモード分裂メカニズムは、発話内の力及び／又は比例するコンテンツに関するモード表示を関連付けることも可能なよりリッチな言語を用いる場合のように、発話内の力(非言語的な通信活動)と各レコードに比例するコンテンツを関連付ける、合理的ユニットによって受信された又は生成された通信レコードの表現用の形式内部言語の用途にも適し、こうして、合理的ユニットは、合理的エージェントの観察において用いられるモードに関して、また、合理的エージェントのリアクションのために用いられるモードに関して明示的に推論し得る。
【0085】
このタイプの起動された内部言語は、特別なモード上で実現された“通知”タイプレコード又は提案内容の一部が１つのモードで表現され、また、他の一部が他のモードで表現された“通知”タイプレコードを表し得る。
【0086】
ArCol言語をマルチモードに拡張するこのような言語の用途において、各モード用の生成機能は、部分的構造STRUCTでは、これらのイベントに対応するモード用に意図された合理的ユニットによって生成された一部の通信レコードを翻訳するイベントの生成だけに限定される。
【0087】
「例」
レストラン検索のための本発明の応用例である上記例において、ユーザは、地図を表示しアニメ化し得る音声インターフェイス及びグラフィックインターフェイスを有し、合理的エージェントから応答を受信する。合理的エージェントは、エッフェル塔近くにイタリアン・レストランはないが、付近の地域に１つあることを示し、この表示が、例えば、グラフィックインターフェイスによって、点滅により、表示された地図上でこの地域をハイライト表示して与えることによって、ユーザの前の質問に答えると仮定する。
【0088】
入出力管理層は、(合理的ユニットによって生成された)この応答に対応する形式通信レコードLIST_ACTSのリストをグラフィックモード生成機能に送信することによって始まる。発信イベント流れを表す部分的構造STRUCTは、その際、空である。
【0089】
次に、グラフィックモード生成モジュールは、タグを構造STRUCTに付加して、ユーザのグラフィックインターフェイス用の発信イベント、例えば、エッフェル塔に隣接する地域を点滅させる命令を表現する。上述したように、このモジュールは、このイベントが、“位置”タイプの“他の識別位置”オブジェクトに、例えば、次の形態でXML構造を生成することによって、関連付けられていることを記述する。即ち、
【数1】

```
<outputstream>
<media name = "graphic"> <blink>
     <object id = "other location">
         <rectangle_area x = "300" y = "500" height
         = "150" width = "200"/>
     </object>
</blink> </media>
</outputstream>
```

【0090】
同じ形式通信レコード及びこの新しい部分的構造STRUCTは、次に、音声モード生成モジ

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ュールに送信される。現部分的構造に以前積み上げられたイベントを調べる際、音声モード生成モジュールは、“位置”タイプの“他の識別位置”オブジェクトが、他のモードで既に起動されたことを観察し、次に、シフタ表現、例えば、“エッフェル塔の近くにイタリアン・レストランはないが、この地域でちょっと遠いが１つ見つけた”を選択して用い、それを指定する。従って、入出力管理層に返されたこれにより得られた構造は、次の形態を有し得る。即ち、

【数2】

```
<outputstream>
<media name = "graphic"> <blink>
     <object id = "other location">
         <rectangle_area x = "300" y = "500" height
         = "150" width = "200"/>
     </object>
</blink> </media>
<media name = "voice">
エッフェル塔の近くにイタリアン・レストランはないが、１つ見つけた
<object id = other location> この地域でちょっと遠いが
</object>.
</media>
</outputstream>
```

【0091】

次に、入出力管理層は、マルチモード分裂相を終了し、得られた流れをインターフェイスに送り、次に、各メッセージを適切なチャネル上に表示する。“オブジェクト”タグによってここに示すオブジェクトを起動する表示は、ユーザインターフェイスによって同期化しなければならない。例えば、エッフェル塔に隣接する地域は、音声合成システムが、言葉“この地域でちょっと遠い”を発声する間、点滅されなければならない。

【図面の簡単な説明】

【0092】

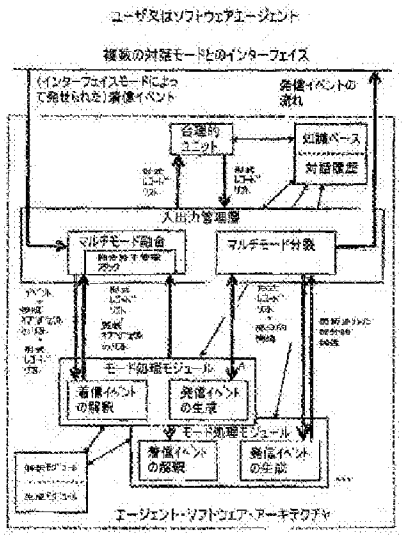
【図1】本発明による会話用合理的エージェントのアーキテクチャを示す図である。

【図2】マルチモード融合相中、関係する動作の論理的及び時系列的構成を示すフローチャートである。

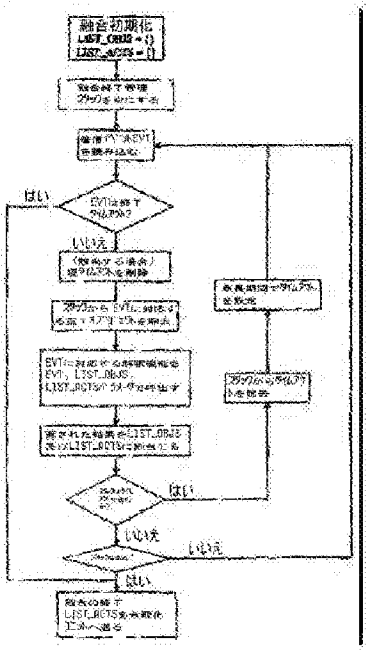
【図3】マルチモード分裂相中、関係する動作の論理的及び時系列的構成を表すフローチャートである。

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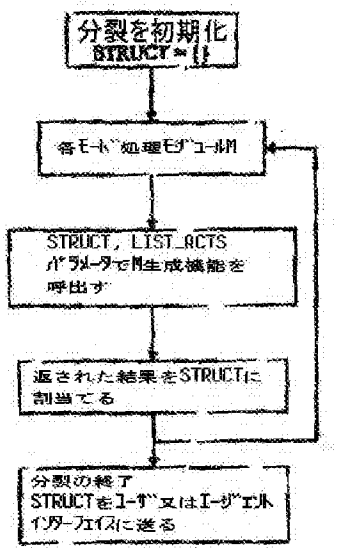
【図1】


ユーザ又はソフトウェアエージェント
複数の対話モードとのインターフェイス
発信イベントの流れ
入出力管理層
マルチモード融合
マルチモード分散
モード処理モジュール
着信イベントの解釈
発信イベントの生成
エージェント・ソフトウェア・アーキテクチャ

【図2】


はい
いいえ
はい
いいえ
いいえ
はい

【図3】


分裂を初期化
STRUCT
各モード処理モジュール
STRUCT, LIST_ACTS
パラメータで生成機能を
呼出す
返された結果をSTRUCTに
割当てる
分裂の終了
STRUCTをユーザ又はエージェント
インターフェイスに送る

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FB04

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【外国語明細書】

DIALOGUING RATIONAL AGENT, INTELLIGENT DIALOGUING SYSTEM USING THIS AGENT, METHOD OF CONTROLLING AN INTELLIGENT DIALOGUE, AND PROGRAM FOR USING IT.

This invention relates in general to automation of a communication method.

More precisely, according to a first of its aspects, the invention relates to a dialoguing rational agent comprising a software architecture including at least means of interpreting incoming events, a rational unit, and means of generating outgoing events, the interpretation means being designed to transform incoming events translating a communication activity of an external agent into incoming formal communication records, during operation, the rational unit producing outgoing formal communication records as a function of the incoming formal communication records during operation and a behavioural model of the rational agent managed by the rational unit, and also during operation the generation means transforming outgoing formal communication records into outgoing events materialising a communication activity of the rational agent with the external agent.

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A rational agent of this type is well known to those skilled in the art and is described in the basic patent FR 2 787 902 by the same applicant.

The technique proposed in this basic patent relates to intelligent dialogue systems used in a natural language by rational agents, both in an interaction context between an intelligent dialogue system and a user, or in the context of an interaction between an intelligent dialogue system and another software agent of an intelligent dialogue system with several agents.

In the first case the dialogue is carried out in a natural language, while in the second case it can be carried out directly in a formal logical language such as the language known under the acronym "ArCoL" divulged in the above mentioned patent, or the language known under the acronym "FIPA-ACL" developed by the FIPA (Foundation for Intelligent Physical Agents) consortium. Information about this consortium can be found on the Internet site http://www.fipa.org).

However, the basic patent mentioned above does not define any specific means of performing a dialogue in which at least the external agent can express itself in several ways, for example both in his or her natural language and by pressing buttons and / or performing specific sign language.

However, attempts to formalise multimodal dialogues have been undertaken so as to allow a dialogue between an automated rational agent and an external agent, for example a human user, expressing himself using non-verbal modes (in other words not using natural language, for example through a sign language or haptic interfaces), or using several different modes simultaneously and / or

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successively, each communication mode being related to a particular information channel as is the case for a written message, an oral message, an intonation, a drawing, a sign language, touch sensitive information, etc.

A user could thus express himself simultaneously by voice and sign language using an appropriate interface, it being understood that the rational agent could also use several different modes to express itself to make its reply to the user.

Such multimodal interactions require the use of two operations, namely multimodal fusion and multimodal fission.

Multimodal fusion is the operation by which one or several multimodal event interpretation components at the input to the intelligent dialogue system produce a unified representation of the semantics of perceived messages.

Multimodal fission, which is only required if the rational agent needs to express itself in several different modes independently of the manner in which the external agent expresses himself, is the dual multimodal fusion operation and, for one or several multimodal event generation components, consists of generating the said events to express the semantic representation of the message produced by the rational unit of the rational agent.

Attempts to formalise multimodal dialogues include the work done by the MMI group in the W3C standardisation organisation that, in the lack of a functional architecture, proposed a tool for representing the multimodal inputs and outputs of an interaction system

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based on a mark-up language called EMMA (Extensible MultiModal Annotation Mark-up Language) and related to the XML language, except that the existing tool is only capable of representing the inputs.

It is also worth mentioning the work done by the VoiceXML group in the W3C organisation in contact with the MMI group, and the work done by the MPEG consortium that originated the MPEG-7 project that provides a mechanism for adding descriptive elements to a multimodal content, and the MPEG-21 project with the objective of proposing a standard framework for multimodal interaction.

However, although many systems use multimodal fusion and / or fission components, these components are usually the result of empirical integrations of processing capabilities of several media, and are not the result of the use of a predefined software architecture.

In particular, although the work done by the MMI group describes a tool for representing multimodal input and output flows, accompanied by an abstract architecture for the organisation of components (see W3C Multimodal Interaction Framework - W3C NOTE 06 May 2003 - http://www.w3.org/TR/2003/NOTE-mmi-framework-20030506/), this work has not yet led to any specific mechanism for the interpretation of multimodal inputs or for the generation of multimodal outputs by the rational intelligent dialogue agent.

In this context, and while the above mentioned patent FR 2 787 902 only considers interactions based on the use of the natural language between the user and the intelligent dialogue system (comprehension and generation) and the use of formal communication languages

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like ArCoL or FIPA-ACL between software agents (one of them possibly being an intelligent dialogue system), the main purpose of this invention is to propose a software architecture that would allow the dialoguing rational agent to generically manage multimodal interactions with its contacts, that may be human users or other software agents.

To achieve this purpose, the dialoguing rational agent according to the invention that is conform with the generic definition given in the above preamble, is characterised essentially in that the software architecture also comprises an inputs and outputs management layer provided with at least one multimodal fusion module, and in that the interpretation means comprise a plurality of incoming event interpretation modules, each module being specifically dedicated to a particular communication mode, in that during operation all incoming events are handled by the multimodal fusion module that redirects interpretation of these incoming events to the various interpretation modules as a function of the mode of each, and in that the multimodal fusion module correlates incoming formal communication records collected from these interpretation modules during the same fusion phase, and submits the incoming formal communication records thus correlated to the rational unit at the end of the fusion phase.

Preferably, the fusion module redirects interpretation of incoming events by transmitting any incoming event expressed in the mode specific to this interpretation module to the interpretation module concerned, with a list of objects, if any, previously evoked in previous incoming events in the same fusion

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phase, and a list of formal communication records returned by the call from the previous interpretation module during the same fusion phase.

To achieve this, each interpretation module called by the fusion module returns, for example, a list of objects completed and updated to include any new evoked object or to modify any object evoked in the last incoming event, and a list of formal communication records translating the communication activity represented by all incoming events received since the beginning of the same fusion phase.

Advantageously, the fusion module includes a fusion phase management stack accessible in read and in write for all interpretation modules and for the fusion module.

Symmetrically, the invention also relates to a dialoguing rational agent comprising a software architecture including at least means of interpreting incoming events, a rational unit, and means of generating outgoing events, the interpretation means being designed so that during operation they can transform incoming events translating a communication activity of an external agent into incoming formal communication records, and during operation the rational unit generating outgoing formal communication records as a function of the incoming formal communication records, and a behavioural model of the rational agent managed by the rational unit, and generation means transforming the outgoing formal communication records into outgoing events materialising a communication activity of the rational agent with regard to the external agent, this agent being characterised in that the inputs and outputs management layer is provided with a multimodal fission

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module, in that the generation means comprise a plurality of modules generating outgoing events, each of which is specifically dedicated to a communication mode specific to it, in that the multimodal fission module redirects transformation of outgoing formal communication records generated by the rational unit as outgoing events with corresponding modes to the different generation modules, and in that the multimodal fission module manages the flow of these outgoing events.

For example, the fission module redirects transformation of outgoing formal records into outgoing events by sequentially addressing to the different generation modules the outgoing formal communication records generated by the rational unit and a tree structure to be completed, organised into branches, each of which will represent one of the outgoing events, each generation module then returning the tree structure to the fission module after having completed it with the outgoing event(s) expressed in the mode specific to this generation module.

Preferably, the tree structure is a mark-up structure, and each generation module uses a tag common to all generation modules to identify the same object evoked in an outgoing event.

It is also useful to allow for at least one of the generation modules to be designed to selectively call a generation module previously called by the fission module for a new processing, so as to transmit a new partial structure to it containing the outgoing event generated by the calling generation module and no longer containing the outgoing event previously generated by the called generation module.

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If the rational agent comprises multimodal fusion modules and fission modules, the multimodal interpretation and generation modules for a particular mode preferably belong to the same processing module for this mode.

The invention also relates to an intelligent dialogue system comprising at least one dialoguing rational agent like that previously defined, associated with a multimodal communication interface.

The invention also relates to a method for controlling an intelligent dialogue between a controlled rational agent and an external agent, this method comprising at least interpretation operations consisting of interpreting incoming events supplied to the controlled rational agent by transforming them into incoming formal communication records, determination operations consisting of generating appropriate responses to the incoming formal communication records in the form of outgoing formal communication records, and expression operations consisting or transforming outgoing formal communication records to produce outgoing events addressed to the external agent, this method being characterised in that it also comprises switching operations, correlation operations and phase management operations, in that at least one switching operation consists of taking account of at least one incoming event as a function of a mode of expression of this incoming event, in that the operations to interpret incoming events expressed in the corresponding different modes are used separately, in that at least one correlation operation consists of collecting the incoming formal communication records corresponding to different modes of

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incoming events, during the same fusion phase, for joint processing of these incoming formal communication records by the same determination operation, and in that phase management operations consist of at least determining at least one fusion phase.

For example, phase management operations include at least one operation to update a stack or a list of objects for management of closure of the fusion phase consisting of selectively storing one or several new objects in the stack during an interpretation operation, to indicate the expected appearance of one or several new events before the end of the fusion phase, and selectively removing one or several objects from the stack during an interpretation operation in the case in which the corresponding expected events are no longer expected before the end of the fusion phase.

Furthermore, phase management operations can also include a stack viewing operation consisting of selectively viewing all objects in the stack during an interpretation operation.

Phase management operations can also include a timing operation consisting of selectively removing a delay type object from the stack, setting a timeout for the duration of this delay, and viewing the stack when this delay has elapsed.

Phase management operations may include an operation to close the fusion phase consisting of terminating the fusion phase after the interpretation operations, when the stack is empty.

The invention also relates to a method for control of an intelligent dialogue between a controlled rational agent and an external agent, this method comprising at

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least interpretation operations consisting of interpreting incoming events output to the controlled rational agent by transforming them into incoming formal communication records, determination operations consisting of generating appropriate responses to incoming formal communication records in the form of outgoing formal communication records, and expression operations consisting of transforming outgoing formal communication records to produce outgoing events addressed to the external agent, this method being characterised in that it also includes a concatenation operation consisting of at least applying expression operations associated with corresponding different output modes to the outgoing formal communication records sequentially, and producing a tree structure organised in branches, each of which represents one of the outgoing events, each expression operation completing this tree structure with modal information specific to this expression operation.

Preferably, the concatenation operation produces a tree structure with tags, and at least some of the expression operations associated with different corresponding output modes use a common tag to evoke the same object invoked in an outgoing event.

Each expression operation can also be designed so that it calls another expression operation already called during the same concatenation operation and to have an outgoing event previously generated by this other expression operation modified by this other expression operation in the tree structure being constructed.

Finally, the invention relates to a computer program containing program instructions for implementing the

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previously defined method when this program is installed on computer equipment for which it is intended.

Other characteristics and advantages of the invention will become clear after reading the following description that is given for guidance and is in no way limitative, with reference to the attached drawings in which:

- Figure 1 is a diagram showing the architecture of a dialoguing rational agent according to the invention;

- Figure 2 is a flowchart showing the logical and chronological organisation of operations involved during a multimodal fusion phase; and

- Figure 3 is a flowchart representing the logical and chronological organisation of the operations involved during a multimodal fission phase.

As mentioned previously, the invention is in the domain of multimodal interaction systems, and more particularly in components for the interpretation of multimodal events at system inputs (fusion components) and generation of multimodal events at the output (fission components).

In this context, this invention proposes a software architecture using the formal architecture described in the basic patent mentioned above for multimodal interactions.

As shown in Figure 1, this architecture comprises:

. an inputs and outputs management layer that organises processing of incoming events and the production of outgoing events within the dialoguing rational agent (see below);

. a number of processing modules, each of which is related to an interaction mode specific to it and that

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processes events expressed in this mode. The choice of this type of modules to be used depends directly on the different communication modes available in the user or software agent interfaces with which the rational agent is required to interact;

. a rational unit like that described in the basic patent mentioned above, that has the function of calculating the reactions of the rational agent, by logical inference with the formal model axioms of this agent;

. a knowledge base and a history of interactions as described in the above mentioned basic patent, and which can be accessed by the inputs / outputs management layer, the rational unit and the processing modules mentioned above; and

. comprehension and generation modules like those described in the above mentioned basic patent, that if necessary are used by modules for processing of events related to linguistic modes (for example resulting from speech recognition, or messages input by the user on the keyboard).

The central element of this new architecture is the inputs / outputs management layer that organises reception and sending of events outside the rational agent, and processing of these events within the agent and their distribution between the different modules.

This processing is organised in three steps or phases, comprising a multimodal fusion phase, a reasoning phase and a multimodal fission phase.

During the multimodal fission phase, all incoming events are interpreted to form a list of formal communication records that formally represent

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communication records accomplished by the external agent that sent these events, namely a human user or another software agent. These records are expressed in a formal logical language like that used in the above mentioned basic patent (called ArCoL, for Artimis Communication Language), or like the FIPA-ACL language, that is a language normalised by the FIPA consortium based on the ArCoL language.

During the reasoning phase, formal communication records are transmitted to the rational unit that calculates an appropriate reaction of the dialoguing rational agent in the form of a new list of formal communication records, this calculation being done using the information in the above mentioned patent known to those skilled in the art, in other words by logical inference based on axioms of the formal behavioural model of the rational agent.

Finally, during the multimodal fission phase, the formal communication records previously generated by the rational unit are transformed into events for the different available modes in the multimodal communication interface with the external agent (user or software agent).

In the special case in which only interactions between the rational agent and other software agents are envisaged (therefore the other software agents are not human users), modules for processing events associated with the interpretation and generation of messages expressed in a formal inter-agent communication language such as FIPA-ACL are implanted in this software architecture. From the point of view of the rational agent that uses the intelligent dialogue system, the use

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of such a language to communicate with other entities is then seen as being an interaction on a particular mode.

The multimodal fusion mechanism used by the inputs / outputs management layer will be described particularly with reference to Figure 2.

Incoming events addressed to the rational agent are transmitted separately, mode by mode, through the multimodal interface through which the rational agent dialogues with the external agent (user or another software agent). For example, if the user clicks while he is pronouncing a phrase, two sources produce events sent to the rational agent, namely firstly the touch mode of the user interface that perceives the clicks, and secondly voice mode that implements voice detection and recognition.

Each incoming event received by the inputs / outputs management layer is sent to the processing module associated with the corresponding mode. In the previous example, the rational agent must have two processing modules, one for events related to touch mode, and the other for events related to voice mode.

In general, each processing module associated with a mode is composed of two functions, also called "modules", namely a function to interpret incoming events that is called during the multimodal fusion phase, and a function to generate outgoing events that is called during the multimodal fission phase, as described later.

Therefore an incoming event will be processed by the interpretation function of the processing module that is associated with the mode in which this event occurs.

This interpretation function receives three arguments, namely:

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. the incoming event EVT itself;

. the list LIST_OBJS of objects already mentioned in the previous incoming events during the same fusion phase (these objects have been identified by the interpretation functions called during the reception of the previous incoming events). This list is empty at the time of the first call to the current multimodal fusion phase; and

. the list LIST_ACTS of formal communication records returned by the call to the last interpretation function during the same fusion phase, this list being empty at the time of the first call to the current multimodal fusion phase.

The called interpretation function uses these two elements, and must return two results:

. the previous list LIST_OBJS of objects already mentioned, completed and possibly updated by objects evoked in the contents of the incoming event EVT. For each new object added to the list, an internal representation of this object is created in the history of interactions that is shared by all modules in the proposed software architecture (in particular, these representations can be used in formal communication records and made accessible to processing modules associated with other modes and with the rational unit);

. the list LIST_ACTS of formal communication records that represent the communication or illocutionary force, of all events received since the beginning of the fusion phase (including the event EVT currently being processed). This list might be empty, which indicates that not all received events can give a satisfactory interpretation of the action of the external agent on the communication interface. The construction of this list

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will depend entirely on an evaluation made by the interpretation function, and in particular does not necessarily include the list returned by the call to the last interpretation function. The interpretation method must build a list that represents all information transmitted so far to the different interpretation functions of the current fusion phase. It is sensitive to the context of previous interactions and must use information stored in the interactions history.

The inputs and outputs management layer must then have a special algorithm (that might depend on the dialogue applications used) to decide whether or not the current fusion phase is terminated. In other words, this algorithm must answer the question of knowing whether or not it is necessary to wait for an incoming event before the rational unit triggers the reaction calculation.

If this algorithm indicates that other incoming events should arrive, then the inputs and outputs management layer waits for the next incoming event and, as described above, calls the interpretation function associated with this event.

On the other hand, if the algorithm indicates that there is no longer any incoming event to be waited for, the fusion phase terminates and the list of formal communication records returned by the call to the last interpretation function is transmitted to the rational unit.

The basic algorithm proposed in this invention, that could be adjusted as a function of the dialogue applications used, is based on maintenance of a stack managing stopping the fusion phase by the multimodal fusion mechanism of the inputs and outputs management

layer. This stack is emptied at the beginning of a fusion phase, and the interpretation function corresponding to the first incoming received event is then called. Fusion terminates as soon as the stack is empty on return from the call to an interpretation function.

This stack actually contains a list of objects representing the different events expected before finishing the fusion phase. These objects can describe the expected events with more or less precision. The most general object will designate any event. A more specific object will designate any event that is to be processed by the processing module for a particular mode. Another more specific object will designate a particular event among events that will be processed by the processing module of a particular mode, etc.

For example, an object designating any event may be stored in a stack, an object designating any event applicable to touch mode, an object designating an event applicable to "click" type touch mode, an event applicable to "click / button pressed" type touch mode, and in this case, an event applicable to "click / button released" type touch mode will correspond to the first three objects but not to the fourth. A particular "delay" type object will also indicate that an event is possible within an indicated delay. This delay allows the rational agent to wait for possible additional events to take into account in the current fusion phase before this phase is effectively closed.

The stack may be made accessible to all interpretation functions in read and write as follows:

. an interpretation function - or module - may store a new object in the stack to indicate that it is

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necessary to wait for a certain event before closing the fusion;

. an interpretation function - or module - may remove one or several objects from the stack to indicate that the corresponding expected events are no longer necessary to terminate the fusion; and

. an interpretation function - or module - may view all objects in the stack to determine which future events are expected before the fusion can be terminated.

When an incoming event EVT is received, the inputs / outputs management layer removes the first object with a description that satisfies this event from the stack before calling the appropriate interpretation function as described above.

After this function has been executed:

. if the stack is empty, the closing algorithm indicates that the fusion is terminated;

. if the stack contains a "delay" object, the inputs and outputs management layer removes this object from the stack and sets a timeout with the time indicated by this object, such that once this delay has elapsed, the inputs / outputs management layer once more tests the stack to determine whether or not the fusion is terminated. Any incoming event received after a timeout has been set and before the end of the corresponding delay will cancel this timeout;

. otherwise, the closing algorithm indicates that the fusion is not finished and that another incoming event should be awaited.

Once the fusion phase is terminated, the rational unit then calculates the reaction of the rational agent

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based on principles known to those skilled in the art described in the above mentioned basic patent.

Example:

In a restaurant search application, the external agent, in this case a human user, is provided with a touch and voice interface for querying the intelligent dialogue system. Suppose that the user pronounces the sentence "I am looking for an Italian restaurant in this area" at the same time that he or she designates an area on the screen representing the Eiffel Tower, for example either by a mouse click or by touching with his or her finger.

The voice mode of the user interface starts by sending an event to the rational agent indicating speech detection ("the user is beginning to speak"). The inputs / outputs management layer then calls the voice mode interpretation function with the following arguments:

. "the user is beginning to speak" incoming event EVT;

. a list LIST_OBJS of objects already evoked (for the moment empty because the fusion phase is just beginning);

. a list LIST_ACTS of formal communication records returned by the last call to an interpretation function (for the moment empty because the fusion phase is just beginning).

At this stage, the voice mode interpretation function cannot associate any semantic interpretation to this event. However, it does know that a "speech recognition result" type event applicable to voice mode

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will arrive later. Therefore, this function stores an object in the fusion phase closing management stack indicating that it is necessary to wait for this type of event, and then returns a list of previously evoked objects and a list of empty formal communication records.

The inputs / outputs management layer applies its fusion phase closing algorithm by examining the contents of the stack. Since the stack contains an event type object, the fusion is not complete and puts itself in waiting for a new incoming event.

The touch mode of the interface then sends an incoming event to the rational agent meaning "click on the Eiffel Tower". Since this event type is not included in the closing management stack of the fusion phase, the inputs / outputs management layer does not modify the stack and calls the touch mode interpretation function with the following arguments:

. the "click on the Eiffel Tower" incoming event;

. an empty list of previously evoked objects;

. the empty list of formal communication records returned by the last call to the voice mode interpretation function.

The touch mode interpretation function then identifies a location type reference to the "Eiffel Tower" object, creates this object in the appropriate structure of the interactions history, then returns a list LIST_OBJS of objects containing only the "Eiffel Tower" object and a list LIST_ACTS of formal communication records. This record list must correspond to the interpretation of the user's message in the context of the current dialogue, assuming that there are no future incoming events. For example, if the dialogue

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has just started, this list may be reduced to a "QUERY-REF" type record applicable to a restaurant located close to the identified "Eiffel Tower" object, which the rational agent interprets the click as being a restaurant search request in the area designated by the click, if no more information is input. In another context, for example if the intelligent dialogue system has just asked the user where he is at the moment, this list could be reduced to an "INFORM" type record indicating that the user is close to the identified "Eiffel Tower" object. Since the fusion phase closing management stack already indicates that another event is expected, the touch mode interpretation function does not modify it.

The user interface voice mode then sends the "I am looking for an Italian restaurant in this area" incoming event of the "voice recognition result" type to the rational agent. Since this event type is included in the fusion phase closing management stack, the inputs / outputs management layer removes it (therefore the stack is empty) and calls the voice mode interpretation function with the following arguments:

. the "I am looking for an Italian restaurant in this area" incoming event;

. a list of previously evoked objects containing the "Eiffel Tower" object;

. and the list of formal communication records returned by the last call to the touch mode interpretation function, for example a "QUERY-REF" or "INFORM" type record.

The voice mode interpretation function then identifies a question relating to a restaurant type object linked to an "Italian" object of the "specialty"

type and an (unknown) object of the "location" type. It examines the list of previously evoked objects, and identifies the unknown object of the "location" type that it has identified to the "Eiffel Tower" type object of the "location" type given in the list. After creating the new objects and modifying the objects already evoked in the appropriate structure in the interactions history, the voice mode interpretation function returns an ordered list of objects composed of an "Eiffel Tower" object of the "location" type, an (unknown) object of the "restaurant" type, and an "Italian" object of the "specialty" type, and a list of formal communication records composed of a single record for example of the "QUERY-REF" type applicable to a restaurant located close to the "Eiffel Tower" type object with "Italian" specialty. Since this interpretation function is not waiting for any other incoming event, it does not modify the fusion phase closing management stack.

After execution of this function, the inputs / outputs management layer examines the stack. Since the stack is now empty, it concludes that the multimodal phase is terminated and transmits the list of interpreted formal communication records and returned by the call to the last interpretation function (in this case a single "QUERY-REF" type record) to the rational unit.

As those skilled in the art will realise, this method would also have been capable of processing the last two incoming events (namely the click and the voice recognition result) if they had been received by the rational agent in the reverse order. In the first step, the voice mode interpretation function would have sent a

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list of evoked objects composed of an (unknown) object of the "restaurant" type, an "Italian" object of the "specialty" type, an "unknown" object of the "location" type, and a list of formal communication records composed of the same "QUERY-REF" type record as above. After determining that the reference "in this area" designated another action by the user, this interpretation function would have indicated that another incoming event (of any type) was expected, in the fusion phase closing management stack. In the second event, the touch mode interpretation function would have identified the "Eiffel Tower" object of the "location" type that it had recognised, to the (unknown) "location" type object present in the list of previously evoked objects. Therefore the final result of the fusion phase would have been the same.

The multimodal fission mechanism used by the inputs / outputs management layer will be described below particularly with reference to Figure 3.

As indicated above, the multimodal fission mechanism is responsible for constructing a flow of outgoing events addressed to the different user interface modes or the external software agent in contact with the rational agent, starting from formal communication records generated by the rational unit. This construction is based on a tree structure in which each branch uniformly represents one of the generated outgoing events.

For reasons of convenience, it is a good idea to choose an XML type mark-up structure in which each first level tag represents information intended for a mode, each of these items of information may itself be

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organised into lower level tag (with as many depth levels as necessary) specific to the corresponding mode.

Although in some respects the choice of an XML structure can resemble the use of languages for processing of multimodal events such as the EMMA (Extensible Multimodal Annotation) Mark-up Language standardised by the MMI group in the W3C normalisation organisation, it is important to remember that the current version of the known architecture is only capable of representing multimodal inputs and emphasise that the main distinguishing feature of the invention is its organisation in separate modules for the processing of events related to the different modes, and in its most complete form, by the orchestration of their generation functions.

At the beginning of the multimodal fission phase, the inputs / outputs management layer initialises an empty partial structure STRUCT, that represents the contents of the flow of outgoing events built up to that point during the multimodal fission phase.

The principle is then to transmit the LIST_ACTS list of formal communication records produced by the rational unit, and the current partial structure STRUCT, to each outgoing event generation function - or module - of the processing module associated with each mode available for the output.

Each of these generation functions or modules then returns a new partial structure STRUCT in which the description of the outgoing event intended for the corresponding mode is completed. At the end of the multimodal fission phase, when the inputs / outputs management layer has called all available output mode

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processing modules, the last returned partial structure represents the complete flow of outgoing events that is effectively transmitted by the rational agent to its contact (user or other software agent) through the communication interface.

Throughout the construction of outgoing events flow in the form of the mark-up structure STRUCT, the generation functions associated with the corresponding possible different output modes use a common tag to identify an object referred to in an output event.

Consequently, if a generation function needs to build an output event that evokes an object already evoked in another mode, then the chronologically second generation function can adapt the generation form of this event taking account of this situation. For example, if the second generation function is related to an expression mode using a natural language, the object evoked for the second time could simply be designated by a pronoun rather than by a complete expression.

Apart from the fact that it has the advantage of being very simple, this fission technique has the advantage that a large number of cases can be processed in which the expressions transmitted to different modes must be synchronised.

On the other hand, it is completely dependent on the order in which the inputs / outputs management layer calls the generation function for each output mode. To prevent this disadvantage from arising, each generation function should itself be allowed to call a generation function that has already been called by the inputs / outputs management layer, and therefore that has left a trace in the partial structure STRUCT, with a new

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partial structure that contains the event generated by the calling generation function and that no longer contains the event previously generated by the called generation function.

The multimodal fission mechanism proposed in this description is equally suitable for the use of a formal internal language for the representation of communication records received or generated by the rational unit, that associates an illocutionary force (non-verbal communication activity) and a content proportional to each record, as for the use of a richer language also capable of associating modal indications on the illocutionary force and / or the proportional content, such that the rational unit can explicitly reason on the modes used in the observations of the rational agent and on the modes to be used for the reactions of the rational agent.

The type of internal language evoked can represent an "INFORM" type record accomplished on a particular mode or an "INFORM" type record for which part of the proposition content has been expressed in one mode and the other part in another mode.

In the use of such a language, that extends the ArCoL language to make it multimodal, the generation functions for each mode are limited to only producing events in the partial structure STRUCT that translate the part of communication records generated by the rational unit that is intended for the mode corresponding to these events.

Example

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In the previous example of the application of the invention for the search for a restaurant, the user has a voice interface and a graphic interface capable of displaying and animating maps, to receive replies from the rational agent. We will assume that the rational agent answers the user's previous question by indicating that there is no Italian restaurant close to the Eiffel Tower but that there is one in a nearby area, this indication being given for example by highlighting this area on the map displayed by the graphic interface by blinking.

The inputs / outputs management layer begins by sending the LIST_ACTS list of formal communication records corresponding to this reply (generated by the rational unit) to the graphic mode generation function. The partial structure STRUCT representing the outgoing events flow is then empty.

The graphic mode generation module then adds a tag into the structure STRUCT to represent an outgoing event intended for the user's graphic interface, for example an order to make the area adjacent to the Eiffel Tower blink. As described above, this module mentions that this event is related to the "other identified location" object of the "location" type, for example by creating an XML structure in the following form:

```
<outputstream>
<media name = "graphic"> <blink>
    <object id = "other location">
        <rectangle_area x = "300" y = "500" height
        = "150" width = "200"/>
    </object>
```

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```
</blink> </media>
</outputstream>
```

The same formal communication records and this new partial structure STRUCT are then transmitted to the voice mode generation module. In examining the previously built events in the current partial structure, the voice mode generation module observes that the "other identified location" object of the "location" type is already evoked in another mode, and then chooses to use a shifter formulation to designate it, for example "There is no Italian restaurant close to the Eiffel Tower; however, I have found one a bit further away in this area". The resulting structure returned to the inputs / outputs management layer would then have the following form:

```
<outputstream>
<media name = "graphic"> <blink>
     <object id = "other location">
          <rectangle_area x = "300" y = "500" height
          = "150" width = "200"/>
     </object>
</blink> </media>
<media name = "voice">
There is no Italian restaurant close to the Eiffel
Tower; however, I have found one <object id = other
location> a bit further away in this area </object>.
</media>
</outputstream>
```

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The inputs / outputs management layer then terminates the multimodal fission phase and sends the flow obtained to the interface that then displays each message on the appropriate channel. The displays invoking the objects shown here by "object" tags must be synchronised by the user interface. For example, the area neighbouring the Eiffel Tower must be made to blink while the speech synthesis system pronounces the words "a bit further away in this area".

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CLAIMS

1. Dialoguing rational agent comprising a software architecture including at least means of interpreting incoming events, a rational unit, and means of generating outgoing events, the interpretation means being designed to transform incoming events translating a communication activity of an external agent into incoming formal communication records, during operation, the rational unit producing outgoing formal communication records as a function of the incoming formal communication records during operation, and a behavioural model of the rational agent managed by the rational unit, and also during operation the generation means transforming outgoing formal communication records into outgoing events materialising a communication activity of the rational agent with the external agent, characterised in that the software architecture also comprises an inputs and outputs management layer provided with at least one multimodal fusion module, and in that the interpretation means comprise a plurality of incoming event interpretation modules, each module being specifically dedicated to a particular communication mode, in that during operation all incoming events are handled by the multimodal fusion module that redirects interpretation of these incoming events to the various interpretation modules as a function of the mode of each, and in that the multimodal fusion module correlates incoming formal communication records collected from these interpretation modules during the same fusion phase, and submits the incoming formal communication records thus correlated to the rational unit at the end of the fusion phase.

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2. Dialoguing rational agent according to claim 1, characterised in that the fusion module redirects interpretation of incoming events by transmitting any incoming event expressed in the mode specific to this interpretation module to the interpretation module concerned, with a list of objects, if any, previously evoked in previous incoming events in the same fusion phase, and a list of formal communication records returned by the call from the previous interpretation module during the same fusion phase.

3. Dialoguing rational agent according to claim 2, characterised in that each interpretation module called by the fusion module returns a list of objects completed and updated to include any new evoked object or to modify any object evoked in the last incoming event, and a list of formal communication records translating the communication activity represented by all incoming events received since the beginning of the same fusion phase.

4. Dialoguing rational agent according to any one of the previous claims, characterised in that the fusion module includes a fusion phase management stack accessible in read and in write for all interpretation modules and for the fusion module.

5. Dialoguing rational agent comprising a software architecture including at least means of interpreting incoming events, a rational unit, and means of generating outgoing events, the interpretation means being designed to transform incoming events translating a communication

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activity of an external agent into incoming formal communication records, during operation, the rational unit producing outgoing formal communication records as a function of the incoming formal communication records during operation and a behavioural model of the rational agent managed by the rational unit, and also during operation the generation means transforming outgoing formal communication records into outgoing events materialising a communication activity of the rational agent with the external agent, characterised in that the inputs and outputs management layer is provided with a multimodal fission module, in that the generation means comprise a plurality of modules generating outgoing events, each of which is specifically dedicated to a communication mode specific to it, in that the multimodal fission module redirects transformation of outgoing formal communication records generated by the rational unit as outgoing events with corresponding modes to the different generation modules, and in that the multimodal fission module manages the flow of these outgoing events.

6. Dialoguing rational agent according to claim 5 combined with any one of claims 1 to 4.

7. Dialoguing rational agent according to claim 6, characterised in that the multimodal interpretation and generation modules for a particular mode belong to the same processing module for this mode.

8. Dialoguing rational agent according to any one of claims 5 to 7, characterised in that the fission module redirects transformation of outgoing formal records into

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outgoing events by sequentially addressing the outgoing formal communication records generated by the rational unit and a tree structure to be completed, organised into branches, each of which will represent one of the outgoing events, to the different generation modules, and in that each generation module returns the tree structure to the fission module after having completed it with the outgoing event(s) expressed in the mode specific to this generation module.

9. Dialoguing rational agent according to claim 8, characterised in that the tree structure is a mark-up structure, and in that each generation module uses a tag common to all generation modules to identify the same object evoked in an outgoing event.

10. Dialoguing rational agent according to claim 9, characterised in that at least one of the generation modules is designed to selectively call a generation module previously called by the fission module for a new processing, so as to transmit a new partial structure to it containing the outgoing event generated by the calling generation module and no longer containing the outgoing event previously generated by the called generation module.

11. Intelligent dialoguing system comprising at least one dialoguing rational agent according to any one of the previous claims, associated with a multimodal communication interface.

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12. Method for controlling an intelligent dialogue between a controlled rational agent and an external agent, this method comprising at least interpretation operations consisting of interpreting incoming events supplied to the controlled rational agent by transforming them into incoming formal communication records, determination operations consisting of generating appropriate responses to the incoming formal communication records in the form of outgoing formal communication records, and expression operations consisting or transforming outgoing formal communication records to produce outgoing events addressed to the external agent, characterised in that it also comprises switching operations, correlation operations and phase management operations, in that at least one switching operation consists of taking account of at least one incoming event as a function of a mode of expression of this incoming event, in that the operations to interpret incoming events expressed in the corresponding different modes are used separately, in that at least one correlation operation consists of collecting the incoming formal communication records corresponding to different modes of incoming events, during the same fusion phase, for joint processing of these incoming formal communication records by the same determination operation, and in that phase management operations consist of at least determining at least one fusion phase.

13. Control method according to claim 12, characterised in that the phase management operations include at least one operation to update a stack or a list of objects for

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management of closure of the fusion phase consisting of selectively storing at least one new object in the stack during an interpretation operation, to indicate the expected appearance of at least one new event before the end of the fusion phase, and selectively removing one or several objects from the stack during an interpretation operation in the case in which the corresponding expected events are no longer expected before the end of the fusion phase.

14. Control method according to claim 13, characterised in that the phase management operations also include a stack viewing operation consisting of selectively viewing all objects in the stack during an interpretation operation.

15. Control method according to claim 14, characterised in that the phase management operations also include a timing operation consisting of selectively removing a delay type object from the stack, setting a timeout for the duration of this delay, and viewing the stack when this delay has elapsed.

16. Control method according to claim 15, characterised in that the phase management operations also include an operation to close the fusion phase consisting of terminating the fusion phase after the interpretation operations, when the stack is empty.

17. Method for controlling an intelligent dialogue between a controlled rational agent and an external agent, this method comprising at least interpretation

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operations consisting of interpreting incoming events supplied to the controlled rational agent by transforming them into incoming formal communication records, determination operations consisting of generating appropriate responses to the incoming formal communication records in the form of outgoing formal communication records, and expression operations consisting or transforming outgoing formal communication records to produce outgoing events addressed to the external agent, characterised in that it also comprises a concatenation operation consisting of at least applying expression operations associated with corresponding different output modes to the outgoing formal communication records sequentially, and producing a tree structure organised in branches, each of which represents one of the outgoing events, each expression operation completing this tree structure with modal information specific to this expression operation.

18. Control method according to claim 17, characterised in that the concatenation operation produces a tree structure with tags, and in that at least some of the expression operations associated with different corresponding output modes use a common tag to evoke the same object invoked in an outgoing event.

19. Control method according to either of claims 17 and 18, characterised in that each expression operation is designed so that it calls another expression operation already called during the same concatenation operation and to have an outgoing event previously generated by this other expression operation modified by this other

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expression operation in the tree structure being constructed.

20. Computer program containing program instructions for implementing the previously defined method according to any one of claims 12 to 19, when this program is installed on computer equipment for which it is intended.

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1 Abstract

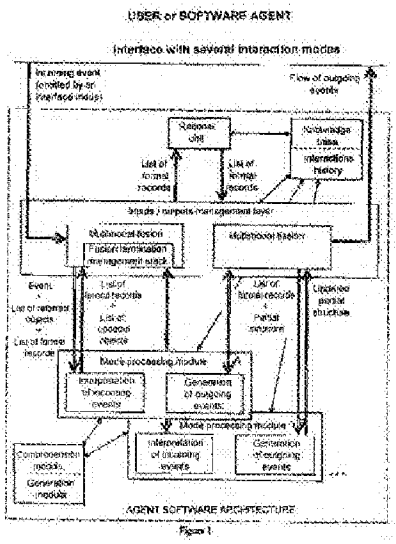
The invention relates particularly to a rational agent including interpretation means to transform events translating a communication activity of an external agent into incoming formal records, a rational unit producing outgoing formal records as a function of the incoming formal records and a behavioural model of the rational agent, and outgoing events generation means transforming outgoing formal records into outgoing events materialising a communication activity of the rational agent with the external agent.

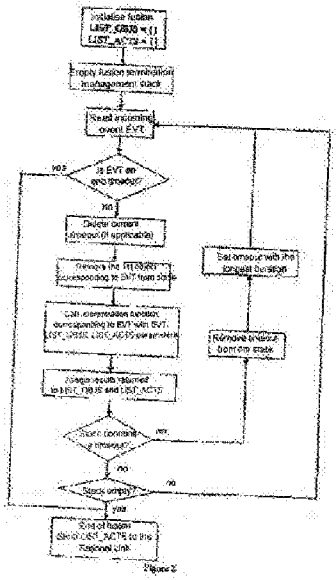
According to the invention, the interpretation means comprise several interpretation modules, each of which is dedicated to a mode specific to it, and the rational agent also comprises an inputs and outputs management layer provided with a multimodal fusion module that takes account of all incoming events, redirects their interpretation to the different interpretation modules concerned, correlates incoming formal records and submits the incoming formal communication records thus correlated to the rational unit.

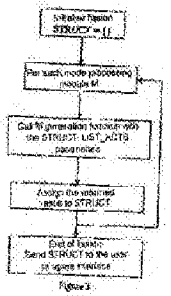
2 Representative Drawing

Fig. 1

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USER or SOFTWARE AGENT
Interface with several interaction modes
Incoming event formatted by or for interface inputs
Flow of outgoing events
Rational Unit
Knowledge base
Interactions history
List of formal records
List of foreign records
Inputs / outputs management layer
Multimodal fusion
Function termination management stack
Multimodal fission
Event
List of formal records
List of foreign records
List of foreign records
Partial programs
Unlocked partial structure
Mode processing module
Interpretation of incoming events
Generation of outgoing events
Mode processing module
Interpretation of incoming events
Generation of outgoing events
Comprehension inputs
Generation modules
AGENT SOFTWARE ARCHITECTURE


Initialize fusion
Empty fusion termination management stack
Read incoming event EVT
Is EVT an end procedure?
yes
no
Delete corners (process) (if applicable)
Set process with the current context
Call interpretation function corresponding to EVT with EVT, LIST_OBJR, LIST_ACTS as arguments
Remove unused corners stack
Assign results returned to LIST_OBJS and LIST_ACTS
Stack contains a process?
yes
no
Stack empty?
no
yes
End of fusion Send LIST_ACTS to the Rational Unit


Initialize fission STRUCT = {}
Per such mode processing module of
Call its generation function with the STRUCT, LIST_ACTS parameters
Assign the returned values inside STRUCT
End of fission Send STRUCT to the user or agent interface

Electronic Patent Application Fee Transmittal

Application Number:	13898045
Filing Date:	20-May-2013
Title of Invention:	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS
First Named Inventor/Applicant Name:	Chris Weider
Filer:	Ngai Bing Zhang/Miriam Nelsen Awan
Attorney Docket Number:	090611-0422643

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	7	40	280
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	2806	1	90	90
		Total in USD ($)		**370**

Electronic Acknowledgement Receipt

EFS ID:	18895695
Application Number:	13898045
International Application Number:	
Confirmation Number:	6157
Title of Invention:	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS
First Named Inventor/Applicant Name:	Chris Weider
Customer Number:	909
Filer:	Ngai Bing Zhang/Miriam Nelsen Awan
Filer Authorized By:	Ngai Bing Zhang
Attorney Docket Number:	090611-0422643
Receipt Date:	29-APR-2014
Filing Date:	20-MAY-2013
Time Stamp:	18:04:57
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$370
RAM confirmation Number	5422
Deposit Account	033975
Authorized User	

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Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		090611-0422643_ResponseNFOA.pdf	555438 e35b5a906a7fbf638790e8f0be6fe2e8588a6e9e	yes	15

Multipart Description/PDF files in .zip description

Document Description	Start	End
Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Claims	2	12
Applicant Arguments/Remarks Made in an Amendment	13	15

Warnings:

Information:

2	Transmittal Letter	090611-0422643_IDS.pdf	524057 f3bbc5a813c1173c7b93e6fded92b85b8bbf7846	no	3

Warnings:

Information:

3	Information Disclosure Statement (IDS) Form (SB08)	090611-0422643_PTO1449.pdf	2868576 4a498bc0b097880e99e662e978c5996317422a11	no	27

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4	Foreign Reference	090611-0422643_JP2008-139928.pdf	2362361 22d790ab82a03ae19fc86727a821516b5dd0df3d	no	16

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5	Foreign Reference	090611-0422643_JP2008-027454.pdf	8986274 71e465ffa836196d0b525bb494e1ee7dbdb7434c	no	58

Warnings:

Information:

6	Foreign Reference	090611-0422643_JP2006-146881.pdf	7520220 338675111ccab8aed2fd26993c595f9e9f6e3231	no	61

Warnings:					
Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	32294 5df42bbb0425f401a29b8c45cb4281c6e1661c9d	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	22849220	

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

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PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/898,045	Filing Date 05/20/2013	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **04/29/2014**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 27	Minus	** 20	= 7	X $40 =	280
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	**280**

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/MARSHA RICHARDS/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/898,045	05/20/2013	Chris Weider	090611-0422643	6157

909 7590 05/14/2014

Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

EXAMINER	
YEN, ERIC L	

ART UNIT	PAPER NUMBER
2658	

NOTIFICATION DATE	DELIVERY MODE
05/14/2014	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket_ip@pillsburylaw.com
heather.marthers@pillsburylaw.com

Examiner-Initiated Interview Summary	Application No.	Applicant(s)	
	13/898,045	WEIDER ET AL.	
	Examiner	Art Unit	
	ERIC YEN	2658	

All participants (applicant, applicant's representative, PTO personnel):

(1) *ERIC YEN*. (3)_____.

(2) *NGAI ZHANG*. (4)_____.

Date of Interview: *06 May 2014*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☐ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☒112 ☐102 ☐103 ☒Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *51,65 and 71*.

Identification of prior art discussed: _____.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Applicant's representative and the Examiner discussed claim amendments for claims 51, 65, and 71 which is expected to be filed with a Terminal Disclaimer to put the application in condition for allowance.

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/ERIC YEN/ Primary Examiner, Art Unit 2658	

PTO/AIA/80 (07-12)
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POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

■ Practitioners associated with Customer Number: 00909

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

■ The address associated with Customer Number: 00909

OR

☐	Firm or Individual Name			
	Address			
	City		State	Zip
	Country			
	Telephone		Email	

Assignee Name and Address: VoiceBox Technologies Corporation
11980 NE 24th Street, Suite 100
Bellevue, Washington 98005

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record
The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	Todd Kenck	Date	5/13/14
Name	Todd Kenck	Telephone	425.968.7907
Title	Chief Financial Officer of VoiceBox Technologies Corporation		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: VOICEBOX TECHNOLOGIES CORPORATION

Application No./Patent No.: 13/898,045 Filed/Issue Date: May 20, 2013

Titled: MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

VOICEBOX TECHNOLOGIES CORPORATION, a Corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: WEIDER, CHRIS; KENNEWICK, RICHARD; KENNEWICK, MIKE; DI CRISTO, PHILIPPE; KENNEWICK, ROBERT A; MENAKER, SAMUEL; and ARMSTRONG, LYNN ELISE To: VOICEBOX TECHNOLOGIES, INC.

The document was recorded in the United States Patent and Trademark Office at Reel 031329, Frame 0748, or for which a COPY thereof is attached.

2. From: VOICEBOX TECHNOLOGIES, INC. To: VOICEBOX TECHNOLOGIES CORPORATION

The document was recorded in the United States Patent and Trademark Office at Reel 032621, Frame 0087, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on

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Page 00374

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STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a COPY thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a COPY thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a COPY thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a COPY thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☒ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

Signature	May 19, 2014 Date
Bradford C. Blaise Printed or Typed Name	47429 Title or Registration Number

American LegalNet, Inc.
www.FormsWorkFlow.com

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	090611-0422643
	Application Number	
Title of Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Chris		WEIDER	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Everett	State/Province	WA	Country of Residence	US

Mailing Address of Inventor:

Address 1	2818 Grand Avenue
Address 2	#B-508

City	Everett	State/Province	WA
Postal Code	98201	Country i	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Richard		KENNEWICK	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Woodinville	State/Province	WA	Country of Residence	US

Mailing Address of Inventor:

Address 1	14222 227th Avenue, N.E.
Address 2	

City	Woodinville	State/Province	WA
Postal Code	98077	Country i	US

Inventor 3 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Mike		KENNEWICK	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

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Page 00376

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	090611-0422643
	Application Number	
Title of Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	

City	Bellevue	State/Province	WA	Country of Residence	US

Mailing Address of Inventor:

Address 1	13407 N.E. 37th Place		
Address 2			
City	Bellevue	State/Province	WA
Postal Code	98005	Country	US

Inventor 4 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Philippe		DI CRISTO	

Residence Information (Select One) (•) US Residency ( ) Non US Residency ( ) Active US Military Service

City	Bellevue	State/Province	WA	Country of Residence	US

Mailing Address of Inventor:

Address 1	177 107th Avenue, N.E.		
Address 2	#1007		
City	Bellevue	State/Province	WA
Postal Code	98004	Country	US

Inventor 5 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Robert	A.	KENNEWICK	

Residence Information (Select One) (•) US Residency ( ) Non US Residency ( ) Active US Military Service

City	Seattle	State/Province	WA	Country of Residence	US

Mailing Address of Inventor:

Address 1	2204 S. Eddy Street		
Address 2			
City	Seattle	State/Province	WA
Postal Code	98108	Country	US

Inventor 6 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Samuel		MENAKER	

Residence Information (Select One) (•) US Residency ( ) Non US Residency ( ) Active US Military Service

City	Bellevue	State/Province	WA	Country of Residence	US

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	090611-0422643
	Application Number	
Title of Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	

Mailing Address of Inventor:

Address 1	480 150th Place, N.E.		
Address 2			
City	Bellevue	**State/Province**	WA
Postal Code	98007	**Country** i	US

Inventor 7 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Lynn	Elise	ARMSTRONG	

Residence Information (Select One) (•) US Residency ( ) Non US Residency ( ) Active US Military Service

City	Woodinville	**State/Province**	WA	**Country of Residence** i	US

Mailing Address of Inventor:

Address 1	19807 183rd Place, N.E.		
Address 2			
City	Woodinville	**State/Province**	WA
Postal Code	98077	**Country** i	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	00909		
Email Address	Docket_ip@pillsburylaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS		
Attorney Docket Number	090611-0422643	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	8	**Suggested Figure for Publication (if any)**	

Filing By Reference :

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	090611-0422643
	Application Number	
Title of Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	00909		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the application number blank.

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13898045	Continuation of	13488299	2012-06-04	8447607	2013-05-21
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13488299	Continuation of	13084197	2011-04-11	8195468	2012-06-05

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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	090611-0422643
	Application Number	
Title of Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	

Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13084197	Division of	11212693	2005-08-29	7949529	2011-05-24

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[j] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization to Permit Access:

☒ Authorization to Permit Access to the Instant Application by the Participating Offices

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	090611-0422643
	Application Number	
Title of Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date o f filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◉ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
○ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here. ☒

Organization Name	VoiceBox Technologies Corporation		
Mailing Address Information For Applicant:			
Address 1	11980 NE 24th Street		
Address 2	Suite 100		
City	Bellevue	**State/Province**	WA
Country	US	Postal Code	98005
Phone Number		Fax Number	

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	090611-0422643
	Application Number	
Title of Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	

Email Address	

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not subsitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication . An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	VoiceBox Technologies Corporation

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	11980 NE 24th Street		
Address 2	Suite 100		
City	Bellevue	**State/Province**	WA
Country i	US	Postal Code	98005
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Signature				Date (YYYY-MM-DD)	2014-05-19
First Name	Bradford C.	Last Name	Blaise	Registration Number	47429

Additional Signature may be generated within this form by selecting the Add button.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	090611-0422643
	Application Number	
Title of Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Electronic Acknowledgement Receipt

EFS ID:	19069200
Application Number:	13898045
International Application Number:	
Confirmation Number:	6157
Title of Invention:	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS
First Named Inventor/Applicant Name:	Chris Weider
Customer Number:	909
Filer:	Bradford C. Blaise/Monet Noel
Filer Authorized By:	Bradford C. Blaise
Attorney Docket Number:	090611-0422643
Receipt Date:	19-MAY-2014
Filing Date:	20-MAY-2013
Time Stamp:	17:16:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		0422643.PDF	672960 2ae3466f002afc894595653866a396934786 0ec2	yes	12

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Miscellaneous Incoming Letter	1	1
	Power of Attorney	2	2
	Assignee showing of ownership per 37 CFR 3.73.	3	4
	Application Data Sheet	5	12

Warnings:	
Information:	
Total Files Size (in bytes):	672960

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	VOICEBOX TECHNOLOGIES, INC.	CONFIRMATION NO.:	6157
SERIAL NUMBER :	13/898,045	EXAMINER NAME:	YEN, ERIC L.
FILING DATE :	May 20, 2013	ART UNIT:	2658
FOR :	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS		

REQUEST CHANGE OF APPLICANT NAME UNDER 37 CFR 1.46(c)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicants respectfully request under 37 CFR 1.46(c) that the applicant name be changed to the following:

VoiceBox Technologies Corporation
11980 NE 24th Street, Suite 100, Bellevue, Washington 98005

A corrected Application Data Sheet, Statement Under 37 CFR 3.73(c) and Power of Attorney are being filed concurrently herewith.

Date: May 19, 2014

Respectfully submitted,

By: _____

Bradford C. Blaise
Registration No. 47,429

Customer No. 00909

PILLSBURY WINTHROP SHAW PITTMAN LLP
1650 Tysons Boulevard
McLean, Virginia 22102
(703) 770-7900

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE PATENT APPLICATION OF:	Chris WEIDER *et al.*
SERIAL NO.:	13/898,045
FILING DATE:	May 20, 2014
ATTORNEY DOCKET NO.:	090611-0422643
CONFIRMATION NO.:	6157
EXAMINER:	Eric L. Yen
ART UNIT:	2658
FOR:	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

SUPPLEMENTAL RESPONSE FOR RESPONSE FILED APRIL 29, 2014

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Non-Final Office Action mailed January 29, 2014, and to supplement the Response filed April 29, 2014 based on the Examiner's suggestions, please amend the above-identified application as follows:

Amendments to the Claims begin on page **2** of this paper.

Remarks begin on page **13** of this paper.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a), and any fees required therefore (including fees for net addition of claims) are hereby authorized to be charged to Deposit Account No. 033975 (**Ref. No. 090611-0422643**).

This listing of claims will replace all prior versions and listings of claims in the Application.

LISTING OF CLAIMS:

1-49. (**Cancelled**)

50. (**Previously Presented**) A system for processing natural language utterances where recognized words of the natural language utterances alone are insufficient to completely determine one or more commands or requests, the system comprising:

one or more physical processors programmed with one or more computer program instructions which, when executed, cause the one or more physical processors to:

generate a first context stack associated with a first device, the first context stack comprising context information that corresponds to a plurality of prior utterances;

synchronize the first context stack with a second context stack associated with a second device such that the context information of the first context stack is updated based on related context information of the second context stack;

receive a natural language utterance associated with a command or request;

determine one or more words of the natural language utterance by performing speech recognition on the natural language utterance; and

determine the command or request based on the one or more words and the updated context information.

51. (**Currently Amended**) The system of claim 50, wherein the one or more physical processors are further caused to:

prompt a user associated with the natural language utterance for one or more of (i) additional information regarding the command or request or (ii) confirmation regarding the command or request; and

receive a non-speech input regarding one or more of the additional information or the confirmation in response to the prompt, wherein the command or request is determined further based on the non-speech input.

52. (**Previously Presented**) The system of claim 50, wherein the first context stack includes a plurality of context entries, and wherein the one or more physical processors are further caused to:

identify, from among the plurality of context entries, one or more context entries that correspond to the one or more words, wherein the updated context information includes the one or more context entries.

53. (**Withdrawn**) The system of claim 52, wherein identifying the one or more context entries comprises:

comparing the plurality of context entries with the one or more words;

generating one or more rank scores for individual context entries of the plurality of context entries based on the comparison; and

identifying, from among the plurality of context entries, the one or more context entries based on the one or more rank scores.

54. (**Withdrawn**) The system of claim 53, wherein the plurality of context entries are ordered in the first context stack, and wherein the one or more physical processors are further caused to update the ordering of the plurality of context entries in the first context stack based on the one or more rank scores.

55. (**Withdrawn**) The system of claim 54, wherein the natural language utterance is associated with a user, and wherein the one or more physical processors are further caused to:

receive a subsequent natural language utterance associated with the user; and

determine one or more subsequent words of the subsequent natural language utterance by performing speech recognition on the subsequent natural language utterance;

identify, from among the plurality of context entries, one or more other context entries that correspond to the one or more subsequent words based on the updated ordering; and

determine a subsequent command or request based on the one or more subsequent words and the one or more other context entries.

56. (**Previously Presented**) The system of claim 52, wherein identifying the one or more context entries comprises identifying, from among the plurality of context entries, the one or more context entries that most closely correspond to the one or more words.

57. (**Previously Presented**) The system of claim 52, wherein the one or more physical processors are further caused to:

identify one or more domain agents associated with the one or more context entries, wherein the one or more domain agents are configured to process the command or request; and

generate a response to the command or request using the one or more domain agents.

58. (**Previously Presented**) The system of claim 57, wherein each of the one or more domain agents comprises domain knowledge associated with a particular domain, the domain knowledge comprising: one or more of (i) a keyword; (ii) a link to an information source; (iii) a list of responses associated with a plurality commands or requests; (iv) a substitution list used to format the plurality of commands or requests; or (v) content including dictionaries, encyclopedias, or almanacs.

59. (**Previously Presented**) The system of claim 57, wherein the response comprises an aggregation of one or more responses generated by the one or more domain agents based on the command or request.

60. (**Previously Presented**) The system of claim 57, wherein the one or more physical processors are further caused to:

obtain information relating to a license agreement that is associated with at least one of the one or more domain agents;

determine, based on the information related to the license agreement, that use of the at least one of the one or more domain agents to process the command or request is permitted; and

use, based on the determination that the use is permitted, the at least one of the one or more domain agents to generate the response.

61. (**Withdrawn**) The system of claim 50, wherein the natural language utterance is associated with a user, and wherein the one or more physical processors are further caused to:

obtain one or more of a cognitive model or an environmental model associated with the user, wherein the cognitive model comprises information relating to one or more interactions between the user and the system, and the environmental model comprises information indicative of how noisy an environment surrounding the user is,

wherein the one or more words are determined further based on one or more of the cognitive model or the environmental model.

62. (**Withdrawn**) The system of claim 50, wherein the natural language utterance is associated with a user, and wherein the one or more physical processors are further caused to:

obtain a first cognitive model that comprises information relating to one or more interactions between the user and the system; and

obtain a second cognitive model that comprises information relating to one or more interactions between the system and a plurality of users of the system,

wherein the one or more words are determined further based on the first cognitive model and the second cognitive model.

63. (**Cancelled**)

64. (**Previously Presented**) A computer-implemented method of processing natural language utterances where recognized words of the natural language utterances alone are insufficient to completely determine one or more commands or requests, the method being implemented by a computer system that includes one or more physical processors executing one or more computer program instructions which, when executed, perform the method, the method comprising:

generating, by the one or more physical processors, a first context stack associated with a first device, the first context stack comprising context information that corresponds to a plurality of prior utterances;

synchronizing the first context stack with a second context stack associated with a second device such that the context information of the first context stack is updated based on related context information of the second context stack;

receiving, at the one or more physical processors, a natural language utterance associated with a command or request;

determining, by the one or more physical processors, one or more words of the natural language utterance by performing speech recognition on the natural language utterance; and

determining, by the one or more physical processors, the command or request based on the one or more words and the updated context information.

65. (**Currently Amended**) The method of claim 64, further comprising:

prompting, by the one or more physical processors, a user associated with the natural language utterance for one or more of (i) additional information regarding the command or request or (ii) confirmation regarding the command or request; and

receiving, at the one or more physical processors, a non-speech input regarding one or more of the additional information or the confirmation in response to the prompt, wherein the command or request is determined further based on the non-speech input.

66. (**Previously Presented**) The method of claim 64, wherein the first context stack includes a plurality of context entries, the method further comprising:

identifying, by the one or more physical processors, from among the plurality of context entries, one or more context entries that correspond to the one or more words, wherein the updated context information includes the one or more context entries.

67. (**Withdrawn**) The method of claim 66, wherein identifying the one or more context entries comprises:

comparing the plurality of context entries with the one or more words;

generating one or more rank scores for individual context entries of the plurality of context entries based on the comparison; and

identifying, from among the plurality of context entries, the one or more context entries based on the one or more rank scores.

68. (**Previously Presented**) The method of claim 66, further comprising:

identifying, by the one or more physical processors, one or more domain agents associated with the one or more context entries, wherein the one or more domain agents are configured to process the command or request; and

generating, by the one or more physical processors, a response to the command or request using the one or more domain agents.

69. (**Withdrawn**) The method of claim 64, wherein the natural language utterance is associated with a user, the method further comprising:

obtaining, by the one or more physical processors, a first cognitive model that comprises information relating to one or more interactions between the user and the system; and

obtaining, by the one or more physical processors, a second cognitive model that comprises information relating to one or more interactions between the system and a plurality of users of the system,

wherein the one or more words are determined further based on the first cognitive model and the second cognitive model.

70. (**Previously Presented**) A computer-implemented method of processing natural language utterances where recognized words of the natural language utterances alone are insufficient to completely determine one or more commands or requests, the method being implemented by a computer system that includes one or more physical processors executing one or more computer program instructions which, when executed, perform the method, the method comprising:

generating, by the one or more physical processors, a first context set associated with a first device, the first context set comprising context information that corresponds to a plurality of prior utterances;

synchronizing the first context set with a second context set associated with a second device such that the context information of the first context set is updated based on related context information of the second context set;

receiving, at the one or more physical processors, a natural language utterance associated with a command or request;

determining, by the one or more physical processors, one or more words of the natural language utterance by performing speech recognition on the natural language utterance; and

determining, by the one or more physical processors, the command or request based on the one or more words and the updated context information.

71. (**Currently Amended**) The method of claim 70, further comprising:

prompting, by the one or more physical processors, a user associated with the natural language utterance for one or more of (i) additional information regarding the command or request or (ii) confirmation regarding the command or request; and

receiving, at the one or more physical processors, a non-speech input regarding one or more of the additional information or the confirmation in response to the prompt, wherein the command or request is determined further based on the non-speech input.

72. (**Previously Presented**) The method of claim 70, wherein the first context set includes a plurality of context entries, the method further comprising:

identifying, by the one or more physical processors, from among the plurality of context entries, one or more context entries that correspond to the one or more words, wherein the updated context information includes the one or more context entries.

73. (**Previously Presented**) The method of claim 72, wherein identifying the one or more context entries comprises identifying, from among the plurality of context entries, the one or more context entries that most closely correspond to the one or more words.

74. (**Previously Presented**) The method of claim 72, further comprising:

identifying, by the one or more physical processors, one or more domain agents associated with the one or more context entries, wherein the one or more domain agents are configured to process the command or request; and

generating, by the one or more physical processors, a response to the command or request using the one or more domain agents.

75. (**Previously Presented**) The method of claim 74, wherein each of the one or more domain agents comprises domain knowledge associated with a particular domain, the domain knowledge comprising: one or more of (i) a keyword; (ii) a link to an information source; (iii) a list of responses associated with a plurality commands or requests; (iv) a substitution list used to format the plurality of commands or requests; or (v) content including dictionaries, encyclopedias, or almanacs.

76. (**Previously Presented**) The method of claim 74, wherein the response comprises an aggregation of one or more responses generated by the one or more domain agents based on the command or request.

77. (**Previously Presented**) The method of claim 74, further comprising:

obtaining, by the one or more physical processors, information relating to a license agreement that is associated with at least one of the one or more domain agents;

determining, by the one or more physical processors, based on the information related to the license agreement, that use of the at least one of the one or more domain agents to process the command or request is permitted; and

using, by the one or more physical processors, based on the determination that the use is permitted, the at least one of the one or more domain agents to generate the response.

REMARKS

In response to the Non-Final Office Action mailed January 29, 2014 (hereinafter "Office Action"), and to supplement the Response filed April 29, 2014 (hereinafter, "Previous Response"), claims 51, 65, and 71 have been further amended (from the listing of claims in the Previous Response). No claims have been further cancelled or newly added. Claims 53-55, 61, 62, 67, and 69 remain withdrawn. Therefore, claims 50-62 and 64-77 remain pending. Support for the instant amendments is provided throughout the as-filed Specification. Thus, no new matter has been added. In view of the foregoing amendments and following comments, allowance of all the claims pending in the application is respectfully requested.

INFORMATION DISCLOSURE STATEMENT

Applicant is submitting herewith a Supplemental Information Disclosure Statement and request that the Examiner considers the cited references and provides a signed copy of the Form PTO-1449 for this submission with the next Office Action.

EXAMINER INTERVIEW AND DOUBLE PATENTING REJECTION

Examiner Yen is thanked for the courtesies extended to Applicant's representative (the undersigned) during the telephonic interview conducted on May 6, 2014, during which Examiner Yen suggested clarifying amendments for claims 51, 65, and 71 (as currently amended).

In addition, solely to expedite prosecution of this application, and without acknowledging the propriety of the alleged basis for the Double Patenting rejection, Applicant has submitted a Terminal Disclaimer herewith and, accordingly, respectfully request that the rejection under the judicially created doctrine of obviousness-type of double patenting be withdrawn.

Applicant further notes that filing a Terminal Disclaimer to obviate a rejection based on non-statutory double patenting does not constitute an admission of the propriety of the

rejection. *See Quad Environmental Technologies Corp. v. Union Sanitary District*, 946 F.2d 870 (Fed. Cir. 1991) (indicating that "filing of a terminal disclaimer simply serves the statutory function of removing the rejection of double patenting, and raises neither a presumption nor estoppel on the merits of the rejection.").

CONCLUSION

Having addressed the foregoing rejection, it is respectfully submitted that the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

Date: **May 19, 2014**

PILLSBURY WINTHROP SHAW PITTMAN LLP

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INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0422643	13/898,045
	Applicant(s)	
	Chris WEIDER *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	May 20, 2013	2658

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	1A	8,719,009	05/06/2014	Baldwin et al.	704	9	
	1B	8,719,026	05/06/2014	Kennewick *et al.*	704	257	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

Electronic Patent Application Fee Transmittal

Application Number:	13898045
Filing Date:	20-May-2013
Title of Invention:	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS
First Named Inventor/Applicant Name:	Chris Weider
Filer:	Ngai Bing Zhang/Miriam Nelsen Awan
Attorney Docket Number:	090611-0422643

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Statutory or Terminal Disclaimer	1814	1	160	160
		Total in USD ($)		**160**

Electronic Acknowledgement Receipt

EFS ID:	19069840
Application Number:	13898045
International Application Number:	
Confirmation Number:	6157
Title of Invention:	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS
First Named Inventor/Applicant Name:	Chris Weider
Customer Number:	909
Filer:	Ngai Bing Zhang/Miriam Nelsen Awan
Filer Authorized By:	Ngai Bing Zhang
Attorney Docket Number:	090611-0422643
Receipt Date:	19-MAY-2014
Filing Date:	20-MAY-2013
Time Stamp:	17:43:21
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$160
RAM confirmation Number	4927
Deposit Account	033975
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		090611-0422643_SUPPResponse.pdf	551328 f46637d787ee059a43588fcac8205d6df316d3cb	yes	14
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Supplemental Response or Supplemental Amendment		1	1	
	Claims		2	12	
	Applicant Arguments/Remarks Made in an Amendment		13	14	
Warnings:					
Information:					
2	Terminal Disclaimer Filed	090611-0422643_TD.pdf	488361 9e71fe70f1070bba0b9920f4c4d2c4d0fc98756d	no	1
Warnings:					
Information:					
3	Transmittal Letter	090611-0422643_SIDS.pdf	520955 4697e21f0819fb6d4b29255e5071eb05af4dda93	no	2
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Form (SB08)	090611-0422643_PTO1449.pdf	545669 7c5cb321a5277e42c61b33c56e5921a91ba3cda8	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
5	Fee Worksheet (SB06)	fee-info.pdf	30485 1aa6db592ea1348b17dac9a45302dfa3ece7a5eb	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	2136798		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/AIA/26 (04-13)
Approved for use through 04/30/2013. OMB 0651-0031
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TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT

Docket Number (Optional): 090611-0422643

In re Application of: Chris WEIDER et al.

Application No.: 13/898,045

Filed: May 20, 2013

For: MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

The applicant, VoiceBox Technologies Corporation, owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 8,447,607 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for any during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 65,473

/Ngai B. Zhang/ — Signature
May 19, 2014 — Date

Ngai B. Zhang — Typed or printed name

Representative for Applicant — Title
(703) 770-7532 — Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Chris WEIDER *et al.*	CONFIRMATION No.:	6157
SERIAL NUMBER :	13/898,045	EXAMINER:	Eric L. Yen
FILING DATE :	May 20, 2013	ART UNIT:	2658
FOR :	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicants hereby make of record in the above-identified application the documents listed on the attached Form PTO-1449.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This Supplemental Information Disclosure Statement is being filed more than three months after the filing date of a national application other than a continued prosecution application under 37 C.F.R. § 1.53(d), or more than three months after the date of entry of the

national stage as set forth in 37 C.F.R. § 1.491 in an international application, and after the mailing date of the first Office Action on the merits, but before the mailing date of any of a Final Action under 37 C.F.R. § 1.113, a Notice of Allowance under 37 C.F.R. § 1.311, or an action that otherwise closes prosecution in the application. 37 C.F.R. § 1.97(c).

I hereby certify that no item of information contained in this Supplemental Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to my knowledge after making reasonable inquiry, no item of information contained in this Supplemental Information Disclosure Statement was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Supplemental Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP

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Dated: May 19, 2014

Google Exhibit 1012
Page 00409

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/898,045	Filing Date 05/20/2013	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **05/19/2014**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 27	Minus	** 27	= 0	X $40 =	0
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/TAMMY L. ACREE/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	13/898,045	WEIDER ET AL.	

Document Code - DISQ	Internal Document – DO NOT MAIL

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed : May 19, 2014	**This patent is subject to a Terminal Disclaimer**	

Approved/Disapproved by:

Henry D Jefferson

U.S. Patent and Trademark Office

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/898,045	05/20/2013	Chris Weider	090611-0422643

CONFIRMATION NO. 6157

IMPROPER CPOA LETTER

909
Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

OC00000068587624

Date Mailed: 05/23/2014

NOTICE REGARDING POWER OF ATTORNEY

This is in response to the power of attorney filed 05/19/2014. The power of attorney in this application is not accepted for the reason(s) listed below:

- The power of attorney has not been accepted because the party who is giving power has not been identified. Power of attorney may only be signed by the applicant for patent (37 CFR 1.42) or the patent owner. A party who is not the applicant must become the applicant in accordance with 37 CFR 1.46(c) and appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. For a reissue application, reexamination proceeding, or supplemental examination proceeding, a patent owner who was not the applicant under 37 CFR 1.46 must appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. See 37 CFR 1.32(b)(4).

/ttkim/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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Page 00412

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/898,045	05/20/2013	2658	1080	090611-0422643	1	1

CONFIRMATION NO. 6157

909
Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

REPLACEMENT FILING RECEIPT

OC00000068587626

Date Mailed: 05/23/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Chris Weider, Everett, WA;
Richard Kennewick, Woodinville, WA;
Mike Kennewick, Bellevue, WA;
Robert A. Kennewick, Seattle, WA;
Philippe Di Cristo, Bellevue, WA;
Samuel Menaker, Bellevue, WA;
Lynn Elise Armstrong, Woodinville, WA;

Applicant(s)

VoiceBox Technologies, Inc., Kirkland, WA
VoiceBox Technologies Corporation, Bellevue, WA

Assignment For Published Patent Application

VoiceBox Technologies, Inc., Kirkland, WA
VoiceBox Technologies Corporation, Bellevue, WA

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 13/488,299 06/04/2012 PAT 8447607
which is a CON of 13/084,197 04/11/2011 PAT 8195468
which is a DIV of 11/212,693 08/29/2005 PAT 7949529

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

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Page 00413

If Required, Foreign Filing License Granted: 06/12/2013
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/898,045**
Projected Publication Date: Not Applicable
Non-Publication Request: No
Early Publication Request: No
**** SMALL ENTITY ****
Title

MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

Preliminary Class

704

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Page 00414

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Attorney Docket: 090611-0422643

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT :	CHRIS WEIDER, ET AL.	CONFIRMATION NO. :	6157
SERIAL NUMBER :	13/898,045	GROUP ART UNIT:	2658
FILING DATE :	MAY 20, 2013		
FOR :	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS		

RESPONSE TO INFORMATIONAL NOTICE

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Informational Notice dated June 19, 2013 (copy attached), please find attached the executed Declarations of inventors (i) Chris WEIDER, (ii) Richard KENNEWICK, (iii) Mike KENNEWICK, (iv) Robert A. KENNEWICK, (v) Philippe DI CRISTO, (vi) Samuel MENAKER, and (vii) Lynn Elise ARMSTRONG.

It is believed that no fees are due in connection with the submission of this paper. However, if it is determined that fees are due, the Commissioner is hereby authorized to charge any fees which may be required to Deposit Account No. 033975 (ref. **090611-0422643)**.

Date: May 23, 2014

Respectfully submitted,

/NGAI B. ZHANG/

By: _____

Ngai B. Zhang
Reg. No. 65,473

PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. Box 10500
McLean, Virginia 22102
Main: 703-770-7900
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Fax: 703-770-7901
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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/898,045	05/20/2013	Chris Weider	090611-0422643

CONFIRMATION NO. 6157

909
Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

NOTICE

OC000000061920149

Date Mailed: 06/19/2013

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
  - Chris Weider
  - Richard Kennewick
  - Mike Kennewick
  - Robert A. Kennewick
  - Philippe Di Cristo
  - Samuel Menaker
  - Lynn Elise Armstrong

  Applicant may submit the inventor's oath or declaration at any time before the Notice of Allowance and Fee(s) Due, PTOL-85, is mailed.

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Page 00417

ATTORNEY DOCKET NUMBER: **090611-0422643**

DECLARATION (37 C.F.R. 1.63) FOR UTILITY PATENT APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76)

Title of Invention: MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

As a below named inventor, I hereby declare that:

This declaration is directed to United States application number 13/898,045 filed on May 20, 2013.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I have reviewed and understand the contents of the application, including the claims.

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 CFR Section 1.56.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

(1) Legal Name of Inventor: **CHRIS WEIDER**

Signature: _____ Date: 5/13/14

(2) Legal Name of Inventor: **RICHARD KENNEWICK**

Signature: _____ Date: _____

(3) Legal Name of Inventor: **MIKE KENNEWICK**

Signature: _____ Date: _____

(4) Legal Name of Inventor: **PHILIPPE DI CRISTO**

Signature: _____ Date: _____

Google Exhibit 1012
Page 00418

ATTORNEY DOCKET NUMBER: **090611-0422643**

DECLARATION (37 C.F.R. 1.63) FOR UTILITY PATENT APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76)

Title of Invention: MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

As a below named inventor, I hereby declare that:

This declaration is directed to United States application number 13/898,045 filed on May 20, 2013.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I have reviewed and understand the contents of the application, including the claims.

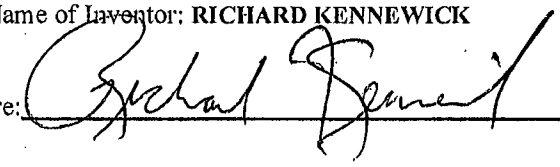
I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 CFR Section 1.56.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

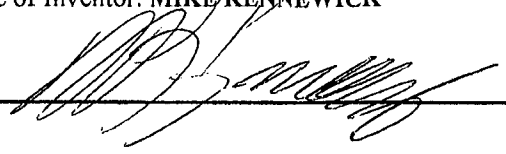
(1) Legal Name of Inventor: **CHRIS WEIDER**

Signature:_____ Date:_____

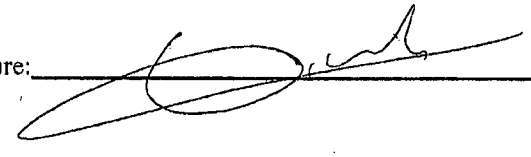
(2) Legal Name of Inventor: **RICHARD KENNEWICK**

Signature:  Date: 5/22/14

(3) Legal Name of Inventor: **MIKE KENNEWICK**

Signature:  Date: 5/22/14

(4) Legal Name of Inventor: **PHILIPPE DI CRISTO**

Signature:  Date: 5/22/14

(5) Legal Name of Inventor: **ROBERT A. KENNEWICK**

Signature: _____ Date: 5/12/14

(6) Legal Name of Inventor: **SAMUEL MENAKER**

Signature: _____ Date: 5/12/14

(7) Legal Name of Inventor: **LYNN ELISE ARMSTRONG**

Signature: _____ Date: _____

Google Exhibit 1012
Page 00420

(5) Legal Name of Inventor: ROBERT A. KENNEWICK

Signature: _____ Date: _____

(6) Legal Name of Inventor: SAMUEL MENAKER

Signature: _____ Date: _____

(7) Legal Name of Inventor: LYNN ELISE ARMSTRONG

Signature: _____ Date: 5-19-12

Electronic Acknowledgement Receipt

EFS ID:	19117122
Application Number:	13898045
International Application Number:	
Confirmation Number:	6157
Title of Invention:	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS
First Named Inventor/Applicant Name:	Chris Weider
Customer Number:	909
Filer:	Ngai Bing Zhang/Miriam Nelsen Awan
Filer Authorized By:	Ngai Bing Zhang
Attorney Docket Number:	090611-0422643
Receipt Date:	23-MAY-2014
Filing Date:	20-MAY-2013
Time Stamp:	15:06:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		090611-0422643_ResponseInformationalNotice.pdf	86091 b3e3ccafad16a33a9d14e6eddeb64f709c08cc92	yes	5

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Applicant Response to Pre-Exam Formalities Notice	1	2
	Oath or Declaration filed	3	5

Warnings:					
Information:					
2	Oath or Declaration filed	090611-0422643_DeclarationArmstrong.pdf	7360156 a8dbbf2b360f8bd75fef61f7d0ff820b2918a339	no	1
Warnings:					
Information:					
		Total Files Size (in bytes):	7446247		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/AIA/80 (07-12)
Approved for use through 11/30/2014. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

■ Practitioners associated with Customer Number: 00909

OR

☐ Practitioner(s) named below (If more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

■ The address associated with Customer Number: 00909

OR

☐	Firm or Individual Name		
	Address		
	City	State	Zip
	Country		
	Telephone	Email	

Assignee Name and Address: VoiceBox Technologies Corporation
11980 NE 24th Street, Suite 100
Bellevue, Washington 98005

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	Todd Kenck	Date	5/13/14
Name	Todd Kenck	Telephone	425.968.7907
Title	Chief Financial Officer of VoiceBox Technologies Corporation		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/14 (12-13)
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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	090611-0422643
	Application Number	
Title of Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Chris		WEIDER	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Everett	State/Province	WA	Country of Residence	US

Mailing Address of Inventor:

Address 1	2818 Grand Avenue		
Address 2	#B-508		
City	Everett	State/Province	WA
Postal Code	98201	Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Richard		KENNEWICK	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Woodinville	State/Province	WA	Country of Residence	US

Mailing Address of Inventor:

Address 1	14222 227th Avenue, N.E.		
Address 2			
City	Woodinville	State/Province	WA
Postal Code	98077	Country	US

Inventor 3 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Mike		KENNEWICK	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

Google Exhibit 1012
Page 00425

PTO/AIA/14 (12-13)
Approved for use through 01/31/2014. OMB 0651-0032
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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	090611-0422643
	Application Number	
Title of Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	

City	Bellevue	State/Province	WA	Country of Residence	US

Mailing Address of Inventor:

Address 1	13407 N.E. 37th Place		
Address 2			
City	Bellevue	State/Province	WA
Postal Code	98005	Country	US

Remove

Inventor 4

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Philippe		DI CRISTO	

Residence Information (Select One) (•) US Residency ( ) Non US Residency ( ) Active US Military Service

City	Bellevue	State/Province	WA	Country of Residence	US

Mailing Address of Inventor:

Address 1	177 107th Avenue, N.E.		
Address 2	#1007		
City	Bellevue	State/Province	WA
Postal Code	98004	Country	US

Remove

Inventor 5

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Robert	A.	KENNEWICK	

Residence Information (Select One) (•) US Residency ( ) Non US Residency ( ) Active US Military Service

City	Seattle	State/Province	WA	Country of Residence	US

Mailing Address of Inventor:

Address 1	2204 S. Eddy Street		
Address 2			
City	Seattle	State/Province	WA
Postal Code	98108	Country	US

Remove

Inventor 6

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Samuel		MENAKER	

Residence Information (Select One) (•) US Residency ( ) Non US Residency ( ) Active US Military Service

City	Bellevue	State/Province	WA	Country of Residence	US

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	090611-0422643
	Application Number	
Title of Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	

Mailing Address of Inventor:

Address 1	480 150th Place, N.E.		
Address 2			
City	Bellevue	**State/Province**	WA
Postal Code	98007	**Country** i	US

Inventor 7 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Lynn	Elise	ARMSTRONG	

Residence Information (Select One) (•) US Residency ( ) Non US Residency ( ) Active US Military Service

City	Woodinville	**State/Province**	WA	**Country of Residence** i	US

Mailing Address of Inventor:

Address 1	19807 183rd Place, N.E.		
Address 2			
City	Woodinville	**State/Province**	WA
Postal Code	98077	**Country** i	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	00909		
Email Address	Docket_ip@pillsburylaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS		
Attorney Docket Number	090611-0422643	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	8	**Suggested Figure for Publication (if any)**	

Filing By Reference :

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	090611-0422643
	Application Number	
Title of Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	00909		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the application number blank.

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13898045	Continuation of	13488299	2012-06-04	8447607	2013-05-21
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13488299	Continuation of	13084197	2011-04-11	8195468	2012-06-05

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	090611-0422643
	Application Number	
Title of Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	

Prior Application Status	Patented	Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13084197	Division of	11212693	2005-08-29	7949529	2011-05-24

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization to Permit Access:

☒ Authorization to Permit Access to the Instant Application by the Participating Offices

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	090611-0422643
	Application Number	
Title of Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date o f filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

(•) Assignee	( ) Legal Representative under 35 U.S.C. 117	( ) Joint Inventor
( ) Person to whom the inventor is obligated to assign.	( ) Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here. ☒

Organization Name	~~Voicebox Technologies, Inc.~~ VoiceBox Technologies Corporation		
Mailing Address Information For Applicant:			
Address 1	~~10505 N.E. 36th Place~~ 11980 NE 24th Street		
Address 2	~~Building 9~~ Suite 100		
City	~~Kirkland~~ Bellevue	**State/Province**	WA
Country	US	Postal Code	~~98033~~ 98005
Phone Number		Fax Number	

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	090611-0422643
	Application Number	
Title of Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	

Email Address	

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not subsitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication . An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	~~Voicebox Technologies, Inc.~~ VoiceBox Technologies Corporation

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	~~10505 N.E. 38th Place~~ 11980 NE 24th Street		
Address 2	~~Building 9~~ Suite 100		
City	~~Kirkland~~ Bellevue	**State/Province**	WA
Country i	US	Postal Code	~~98033~~ 98005
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Signature	Ngai Zhang	Date (YYYY-MM-DD)	2014-05-27
First Name	Ngai B.	Last Name Zhang	Registration Number 65473

Additional Signature may be generated within this form by selecting the Add button.

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	090611-0422643
	Application Number	
Title of Invention	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Electronic Acknowledgement Receipt

EFS ID:	19137077
Application Number:	13898045
International Application Number:	
Confirmation Number:	6157
Title of Invention:	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS
First Named Inventor/Applicant Name:	Chris Weider
Customer Number:	909
Filer:	Ngai Bing Zhang/Monet Noel
Filer Authorized By:	Ngai Bing Zhang
Attorney Docket Number:	090611-0422643
Receipt Date:	27-MAY-2014
Filing Date:	20-MAY-2013
Time Stamp:	17:42:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		0422643_REQ4CHNGAPPLNM.PDF	889783 08e8b662d3e4492cd11f6c4fbe22505de4b04e02	yes	15

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Miscellaneous Incoming Letter	1	4
	Assignee showing of ownership per 37 CFR 3.73.	5	6
	Power of Attorney	7	7
	Application Data Sheet	8	15
Warnings:			
Information:			
	Total Files Size (in bytes):	889783	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Voicebox Technologies, Inc. & VoiceBox Technologies Corporation	CONFIRMATION NO.:	6157
SERIAL NUMBER :	13/898,045	EXAMINER NAME:	YEN, ERIC L.
FILING DATE :	May 20, 2013	ART UNIT:	2658
FOR :	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS		

REQUEST CHANGE OF APPLICANT NAME UNDER 37 CFR 1.46(c)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

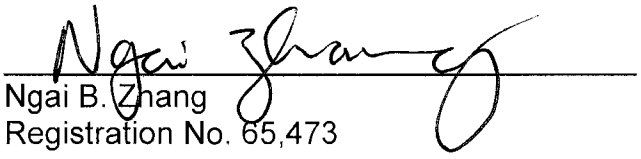
Applicants respectfully request under 37 CFR 1.46(c) that the applicant name be changed to the following:

VoiceBox Technologies Corporation
11980 NE 24th Street, Suite 100, Bellevue, Washington 98005

A corrected Application Data Sheet, Statement Under 37 CFR 3.73(c) and Power of Attorney are being filed concurrently herewith.

Date: May 27, 2014

Respectfully submitted,

By: 

Ngai B. Zhang
Registration No. 65,473

Customer No. 00909

PILLSBURY WINTHROP SHAW PITTMAN LLP
1650 Tysons Boulevard
McLean, Virginia 22102
(703) 770-7900

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/898,045	05/20/2013	2658	1080	090611-0422643	1	1

CONFIRMATION NO. 6157

REPLACEMENT FILING RECEIPT

909
Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

OC00000006858762 6

Date Mailed: 05/23/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Chris Weider, Everett, WA;
Richard Kennewick, Woodinville, WA;
Mike Kennewick, Bellevue, WA;
Robert A. Kennewick, Seattle, WA;
Philippe Di Cristo, Bellevue, WA;
Samuel Menaker, Bellevue, WA;
Lynn Elise Armstrong, Woodinville, WA;

Applicant(s)

~~VoiceBox Technologies, Inc., Kirkland, WA~~
VoiceBox Technologies Corporation, Bellevue, WA

Assignment For Published Patent Application

~~VoiceBox Technologies, Inc., Kirkland, WA~~
VoiceBox Technologies Corporation, Bellevue, WA

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 13/488,299 06/04/2012 PAT 8447607
which is a CON of 13/084,197 04/11/2011 PAT 8195468
which is a DIV of 11/212,693 08/29/2005 PAT 7949529

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

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If Required, Foreign Filing License Granted: 06/12/2013
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/898,045**
Projected Publication Date: Not Applicable
Non-Publication Request: No
Early Publication Request: No
** **SMALL ENTITY** **
Title

MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

Preliminary Class

704

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Voicebox Technologies, Inc. & VoiceBox Technologies Corporation

Application No./Patent No.: 13/898,045 Filed/Issue Date: May 20, 2013

Titled: MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

VoiceBox Technologies Corporation, a Corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: WEIDER, CHRIS; KENNEWICK, RICHARD; KENNEWICK, MIKE; DI CRISTO, PHILIPPE; KENNEWICK, ROBERT A; MENAKER, SAMUEL; and ARMSTRONG, LYNN ELISE To: VOICEBOX TECHNOLOGIES, INC.

The document was recorded in the United States Patent and Trademark Office at Reel 031329, Frame 0748, or for which a COPY thereof is attached.

2. From: VOICEBOX TECHNOLOGIES, INC. To: VOICEBOX TECHNOLOGIES CORPORATION

The document was recorded in the United States Patent and Trademark Office at Reel 032621, Frame 0087, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on

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Page 00439

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a COPY thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a COPY thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a COPY thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at.

Reel _____, Frame _____, or for which a COPY thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☒ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

Ngai Zhang

Signature

May 27, 2014

Date

Ngai B. Zhang

Printed or Typed Name

65743

Title or Registration Number

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

909 7590 06/03/2014

Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

EXAMINER	
YEN, ERIC L	
ART UNIT	PAPER NUMBER
2658	

DATE MAILED: 06/03/2014

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/898,045	05/20/2013	Chris Weider	090611-0422643	6157

TITLE OF INVENTION: MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	09/03/2014

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

909 7590 06/03/2014
Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/898,045	05/20/2013	Chris Weider	090611-0422643	6157

TITLE OF INVENTION: MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	09/03/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
YEN, ERIC L	2658	704-235000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
- ❑ Issue Fee
- ❑ Publication Fee (No small entity discount permitted)
- ❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ❑ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Page 00442

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/898,045	05/20/2013	Chris Weider	090611-0422643	6157

909 7590 06/03/2014

Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

EXAMINER	
YEN, ERIC L	

ART UNIT	PAPER NUMBER
2658	

DATE MAILED: 06/03/2014

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice Requiring Inventor's Oath or Declaration	Application No. 13/898,045	Applicant(s) Chris Weider	
	Examiner YEN, ERIC L	Art Unit 2658	

This notice is an attachment to the Notice of Allowability (PTOL-37), or the Notice of Allowability For A Design Application (PTOL-37D).

An inventor's oath or declaration in compliance with 37 CFR 1.63 or 1.64 executed by or with respect to each inventor has not yet been submitted.

An oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each inventor (for any inventor for which a compliant oath, declaration, or substitute statement has not yet been submitted) MUST be filed no later than the date on which the issue fee is paid. See 35 U.S.C. 115(f). Failure to timely comply will result in ABANDONMENT of this application.

A properly executed inventor's oath to declaration has not been received for the following inventor(s):

If applicant previously filed one or more oaths, declarations, or substitute statements, applicant may have received an informational notice regarding deficiencies therein.

The following deficiencies are noted:

INFORMAL ACTION PROBLEMS

- A properly executed inventor's oath or declaration has not been received for the following inventor(s): **Chris Weider**, **Richard Kennewick**, **Mike Kennewick**, **Robert A. Kennewick**, **Philippe Di Cristo**, **Samuel Menaker**, and **Lynn Elise Armstrong**.
  Applicant may submit the inventor's oath or declaration at any time before the Notice of Allowance and Fee(s) Due, PTOL-85, is mailed.

Questions relating to this Notice should be directed to the Application Assistance Unit at 571-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 13/898,045	Applicant(s) WEIDER ET AL.	
	Examiner ERIC YEN	Art Unit 2658	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Amendment filed 5/21/14*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *50-62 and 64-77*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☐ Examiner's Amendment/Comment
6. ☒ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

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Page 00446

DETAILED ACTION

1. The present application is being examined under the pre-AIA first to invent provisions.

Response to Amendment

1. In response to the Office Action mailed 1/29/14, applicant has submitted an amendment filed 4/29/14.

Claims 50-52, 54, 55, 57, 58, 60-62, 64-66, 68-69 have been amended. Claims 63 have been cancelled. New Claims 70-77 have been added.

Allowable Subject Matter

2. Claims 50-62, 64-77, are allowed.

3. The following is an examiner's statement of reasons for allowance:

As described in the Notice of Allowability mailed 11/1/10 in Application 12/617506, Mumick et al. (US 2003/0046346) teaches synchronizing plural browsers on a plurality of mobile devices including a state manager that stores navigation histories in a data store so that a user can switch from a visual browser on one device to a voice browser on a second device without losing navigation state, but synchronization of navigation state is not the claimed synchronization of context across multiple devices (page 2).

While the claim language at issue is not identical, the limitation in claim 63 is directed to a similar concept which is also more narrow in that not only is context synchronized, but context stacks/sets of distinct devices are synchronized.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC YEN whose telephone number is (571)272-4249. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EY 5/21/14
/ERIC YEN/
Primary Examiner, Art Unit 2658

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0422643	13/898,045
	Applicant(s)	
	Chris WEIDER *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	May 20, 2013	2658

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	1A	4,430,669	02/07/1984	Cheung	358	122	
	1B	4,821,027	04/11/1989	Mallory *et al.*	340	521	
	1C	4,910,784	03/20/1990	Doddington *et al.*	381	43	
	1D	5,027,406	06/25/1991	Roberts *et al.*	381	43	
	1E	5,155,743	10/13/1992	Jacobs	375	28	
	1F	5,164,904	11/17/1992	Sumner	364	436	
	1G	5,208,748	05/04/1993	Flores *et al.*	364	419	
	1H	5,274,560	12/28/1993	LaRue	364	444	
	1I	5,357,596	10/18/1994	Takebayashi *et al.*	395	2.84	
	1J	5,377,350	12/27/1994	Skinner	395	600	
	1K	5,386,556	01/31/1995	Hedin et al.	395	600	
	1L	5,424,947	06/13/1995	Nagao et al.	364	419.08	
	1M	5,471,318	11/28/1995	Ahuja et al.	358	400	
	1N	5,475,733	12/12/1995	Eisdorfer et al.	379	52	
	1O	5,488,652	01/30/1996	Bielby *et al.*	379	88	
	1P	5,499,289	03/12/1996	Bruno et al.	379	220	
	1Q	5,500,920	03/19/1996	Kupiec	395	2.79	
	1R	5,517,560	05/14/1996	Greenspan	379	114	
	1S	5,533,108	07/02/1996	Harris et al.	379	201	
	1T	5,537,436	07/16/1996	Bottoms et al.	375	222	
	1U	5,539,744	07/23/1996	Chu et al.	370	60	
	1V	4,910,784	03/20/1990	Doddington *et al.*	381	43	
	1W	5,027,406	06/25/1991	Roberts *et al.*	381	43	

FOREIGN PATENT DOCUMENTS

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	1X	1 320 043 A2	06/18/2003	Europe				
	1Y	1 646 037	04/12/2006	Europe				
	1Z	WO 99/46763	09/16/1999	International				
	1AA	WO 00/21232	04/13/2000	International				
	1BB	WO 00/46792	08/10/2000	International				

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	1CC	REUTERS, "IBM to Enable Honda Drivers to Talk to Cars", Charles Schwab & Co., Inc., July 28, 2002, 1 page.
	1DD	LIN, Bor-shen, *et al.*, "A Distributed Architecture for Cooperative Spoken Dialogue Agents with Coherent Dialogue State and History", ASRU'99, 1999, 4 pages.

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	2A	5,557,667	09/17/1996	Bruno et al.	379	201	
	2B	5,559,864	09/24/1996	Kennedy, Jr.	379	59	
	2C	5,563,937	10/08/1996	Bruno et al.	379	201	
	2D	5,577,165	11/19/1996	Takebayashi et al.	395	2.84	
	2E	5,590,039	12/31/1996	Ikeda et al.	395	759	
	2F	5,608,635	03/04/1997	Tamai	364	449.3	
	2G	5,617,407	04/01/1997	Bareis	369	275.3	
	2H	5,633,922	05/27/1997	August et al.	379	220	
	2I	5,652,570	07/29/1997	Lepkofker	340	573	
	2J	5,675,629	10/07/1997	Raffel et al.	379	58	
	2K	5,696,965	12/09/1997	Dedrick	395	610	
	2L	5,708,422	01/13/1998	Blonder et al.	340	825.34	
	2M	5,721,938	02/24/1998	Stuckey	395	754	
	2N	5,722,084	02/24/1998	Chakrin et al.	455	551	
	2O	5,740,256	04/14/1998	Castello Da Costa *et al.*	361	94.7	
	2P	5,742,763	04/21/1998	Jones	395	200.3	
	2Q	5,748,841	05/05/1998	Morin *et al.*	395	2.66	
	2R	5,748,974	05/05/1998	Johnson	395	759	
	2S	5,752,052	05/12/1998	Richardson et al.	395	759	
	2T	5,754,784	05/19/1998	Garland et al.	395	200.49	
	2U	5,761,631	06/02/1998	Nasukawa	704	9	
	2V	5,774,841	06/30/1998	Salazar *et al.*	704	225	
	2W	5,774,859	06/30/1998	Houser *et al.*	704	275	

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	2X	WO 01/78065	10/18/2001	International				
	2Y	WO 2004/072954	08/26/2004	International				
	2Z	WO 2007/019318	02/15/2007	International				
	2AA	WO 2007/021587	02/22/2007	International				
	2BB	WO 2007/027546	03/08/2007	International				

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	2CC	KUHN, Thomas, *et al.*, "Hybrid In-Car Speech Recognition for Mobile Multimedia Applications", Vehicular Technology Conference, IEEE, July 1999, pages 2009-2013.
	2DD	BELVIN, Robert, *et al.*, "Development of the HRL Route Navigation Dialogue System", Proceedings of the First International Conference on Human Language Technology Research, San Diego, 2001, pages 1-5.

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	3A	5,794,050	08/11/1998	Dahlgren et al.	395	708	
	3B	5,794,196	08/11/1998	Yegnanarayanan *et al.*	704	255	
	3C	5,797,112	08/18/1998	Komatsu *et al.*	701	201	
	3D	5,799,276	08/25/1998	Komissarchik *et al.*	704	251	
	3E	5,802,510	09/01/1998	Jones	707	2	
	3F	5,832,221	11/03/1998	Jones	375	200.36	
	3G	5,839,107	11/17/1998	Gupta *et al.*	704	270	
	3H	5,848,396	12/08/1998	Gerace	705	10	
	3I	5,855,000	12/29/1998	Waibel *et al.*	704	235	
	3J	5,867,817	02/02/1999	Catallo *et al.*	704	255	
	3K	5,878,385	03/02/1999	Bralich *et al.*	704	9	
	3L	5,878,386	03/02/1999	Coughlin	704	10	
	3M	5,892,813	04/06/1999	Morin *et al.*	379	88.01	
	3N	5,892,900	04/06/1999	Ginter *et al.*	395	186	
	3O	5,895,464	04/20/1999	Bhandari *et al.*	707	3	
	3P	5,895,466	04/20/1999	Goldberg et al.	707	5	
	3Q	5,897,613	04/27/1999	Chan	704	210	
	3R	5,902,347	05/11/1999	Backman *et al.*	701	200	
	3S	5,911,120	06/08/1999	Jarett et al.	455	417	
	3T	5,918,222	06/29/1999	Fukui *et al.*	707	1	
	3U	5,926,784	07/20/1999	Richardson et al.	704	9	
	3V	5,933,822	08/03/1999	Braden-Harder et al.	707	5	
	3W	5,953,393	09/14/1999	Culbreth et al.	379	88.25	

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	3X	WO 2007/027989	03/08/2007	International				
	3Y	WO 2008/098039	08/14/2008	International				
	3Z	WO 2008/118195	10/02/2008	International				
	3AA	WO 2009/075912	06/18/2009	International				
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	3CC	LIND, R., *et al.*, "The Network Vehicle—A Glimpse into the Future of Mobile Multi-Media", IEEE Aerosp. Electron. Systems Magazine, Volume 14, No. 9, September 1999, pages 27-32.
	3DD	ZHAO, Yilin, "Telematics: Safe and Fun Driving", IEEE Intelligent Systems, Volume 17, Issue 1, 2002, pages 10-14.

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	4A	5,960,397	09/28/1999	Rahim	704	244	
	4B	5,960,399	09/28/1999	Barclay *et al.*	704	270	
	4C	5,960,447	09/28/1999	Holt *et al.*	707	500	
	4D	5,963,894	10/05/1999	Richardson et al.	704	9	
	4E	5,963,940	10/05/1999	Liddy et al.	707	5	
	4F	5,987,404	11/16/1999	Della Pietra et al.	704	9	
	4G	5,991,721	11/23/1999	Asano et al.	704	257	
	4H	5,995,119	11/30/1999	Cosatto et al.	345	473	
	4I	5,995,928	11/30/1999	Nguyen *et al.*	704	251	
	4J	6,009,382	12/28/1999	Martino et al.	704	1	
	4K	6,014,559	01/11/2000	Amin	455	413	
	4L	6,018,708	01/25/2000	Dahan *et al.*	704	244	
	4M	6,021,384	02/01/2000	Gorin et al.	704	1	
	4N	6,028,514	02/22/2000	Lemelson *et al.*	340	539	
	4O	6,035,267	03/07/2000	Watanabe *et al.*	704	1	
	4P	6,044,347	03/28/2000	Abella et al.	704	272	
	4Q	6,049,602	04/11/2000	Foladare et al.	379	265	
	4R	6,049,607	04/11/2000	Marash *et al.*	379	410	
	4S	6,058,187	05/02/2000	Chen	380	21	
	4T	6,067,513	05/23/2000	Ishimitsu	704	233	
	4U	6,076,059	06/13/2000	Glickman *et al.*	704	260	
	4V	6,078,886	06/20/2000	Dragosh et al.	704	270	
	4W	6,081,774	06/27/2000	De Hita et al.	704	9	

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	4X	WO 2010/096752	08/26/2010	International				
	4Y	2006-146881	06/08/2006	Japan				
	4Z	2008-027454	02/07/2008	Japan				
	4AA	2008-139928	06/19/2008	Japan				

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	4BB	CHAI *et al.*, "MIND: A Semantics-Based Multimodal Interpretation Framework for Conversational System", Proceedings of the International CLASS Workshop on Natural, Intelligent and Effective Interaction in Multimodal Dialogue Systems, June 2002, pages 37-46.
	4CC	CHEYER *et al.*, "Multimodal Maps: An Agent-Based Approach", International Conference on Cooperative Multimodal Communication (CMC/95), May 24-26, 1995, pages 111-121.
	4DD	ELIO *et al.*, "On Abstract Task Models and Conversation Policies" in Workshop on Specifying and Implementing Conversation Policies, Autonomous Agents '99, Seattle, 1999, 10 pages.

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	5B	6,101,241	08/08/2000	Boyce et al.	379	88.01	
	5C	6,108,631	08/22/2000	Ruhl	704	270	
	5D	6,119,087	09/12/2000	Kuhn et al.	704	270	
	5E	6,122,613	09/19/2000	Baker	704	235	
	5F	6,134,235	10/17/2000	Goldman et al.	370	352	
	5G	6,144,667	11/07/2000	Doshi et al.	370	401	
	5H	6,144,938	11/07/2000	Surace *et al.*	704	257	
	5I	6,154,526	11/28/2000	Dahlke *et al.*	379	88.03	
	5J	6,160,883	12/12/2000	Jackson et al.	379	230	
	5K	6,167,377	12/26/2000	Gillick *et al.*	704	240	
	5L	6,173,266	01/09/2001	Marx *et al.*	704	270	
	5M	6,173,279	01/09/2001	Levin et al.	707	5	
	5N	6,175,858	01/16/2001	Bulfer *et al.*	709	206	
	5O	6,185,535	02/06/2001	Hedin *et al.*	704	270	
	5P	6,188,982	02/13/2001	Chiang	704	256	
	5Q	6,192,110	02/20/2001	Abella *et al.*	379	88.01	
	5R	6,192,338	02/20/2001	Haszto *et al.*	704	257	
	5S	6,195,634	02/27/2001	Dudemaine *et al.*	704	231	
	5T	6,195,651	02/27/2001	Handel *et al.*	707	2	
	5U	6,199,043	03/06/2001	Happ	704	272	
	5V	6,208,964	03/27/2001	Sabourin	704	244	
	5W	6,208,972	03/27/2001	Grant *et al.*	704	275	

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	5Y	MAO, Mark Z., "Automatic Training Set Segmentation for Multi-Pass Speech Recognition", Department of Electrical Engineering, Stanford University, CA, copyright 2005, IEEE, pages I-685 to I-688.
	5Z	VANHOUCKE, Vincent, "Confidence Scoring and Rejection Using Multi-Pass Speech Recognition", Nuance Communications, Menlo Park, CA, 2005, 4 pages.

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	6B	6,219,643	04/17/2001	Cohen *et al.*	704	257	
	6C	6,226,612	05/01/2001	Srenger *et al.*	704	256	
	6D	6,233,556	05/15/2001	Teunen *et al.*	704	250	
	6E	6,233,559	05/15/2001	Balakrishnan	704	275	
	6F	6,233,561	05/15/2001	Junqua *et al.*	704	277	
	6G	6,236,968	05/22/2001	Kanevsky *et al.*	704	275	
	6H	6,246,981	06/12/2001	Papineni *et al.*	704	235	
	6I	6,246,990	06/12/2001	Happ	704	275	
	6J	6,266,636	07/24/2001	Kosaka *et al.*	704	244	
	6K	6,269,336	07/31/2001	Ladd *et al.*	704	270	
	6L	6,272,455	08/07/2001	Hoshen *et al.*	704	1	
	6M	6,275,231	08/14/2001	Obradovich	345	349	
	6N	6,278,377	08/21/2001	DeLine *et al.*	340	815.4	
	6O	6,278,968	08/21/2001	Franz *et al.*	704	3	
	6P	6,288,319	09/11/2001	Catona	84	609	
	6Q	6,292,767	09/18/2001	Jackson *et al.*	704	1	
	6R	6,301,560	10/09/2001	Masters	704	251	
	6S	6,308,151	10/23/2001	Smith	704	235	
	6T	6,314,402	11/06/2001	Monaco et al.	704	275	
	6U	6,321,196	11/20/2001	Franceschi	704	243	
	6V	6,356,869	03/12/2002	Chapados *et al.*	704	275	
	6W	6,362,748	03/26/2002	Huang	340	901	

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	6Y	EL MELIANI *et al.*, "A Syllabic-Filler-Based Continuous Speech Recognizer for Unlimited Vocabulary", Canadian Conference on Electrical and Computer Engineering, Volume 2, September 5-8, 1995, pages 1007-1010.

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	7C	6,374,214	04/16/2002	Friedland *et al.*	704	235	
	7D	6,377,913	04/23/2002	Coffman *et al.*	704	8	
	7E	6,381,535	04/30/2002	Durocher *et al.*	701	202	
	7F	6,385,596	05/07/2002	Wiser *et al.*	705	51	
	7G	6,385,646	05/07/2002	Brown et al.	709	217	
	7H	6,393,403	05/21/2002	Majaniemi	704	275	
	7I	6,393,428	05/21/2002	Miller et al.	707	102	
	7J	6,397,181	05/28/2002	Li *et al.*	704	256	
	7K	6,404,878	06/11/2002	Jackson et al.	379	221.01	
	7L	6,405,170	06/11/2002	Phillips *et al.*	704	270	
	7M	6,408,272	06/18/2002	White *et al.*	704	270.1	
	7N	6,411,810	06/25/2002	Maxemchuk	455	453	
	7O	6,411,893	06/25/2002	Ruhl	701	207	
	7P	6,415,257	07/02/2002	Junqua *et al.*	704	275	
	7Q	6,418,210	07/09/2002	Sayko	379	142.15	
	7R	6,420,975	07/16/2002	DeLine *et al.*	340	815.4	
	7S	6,429,813	08/06/2002	Feigen	342	357.13	
	7T	6,430,285	08/06/2002	Bauer et al.	379	265.01	
	7U	6,430,531	08/06/2002	Polish	704	257	
	7V	6,434,523	08/13/2002	Monaco	704	257	
	7W	6,434,524	08/13/2002	Weber	704	257	

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	7Y	BAZZI, Issam *et al.*, "Heterogeneous Lexical Units for Automatic Speech Recognition: Preliminary Investigations", Processing of the IEEE International Conference on Acoustics, Speech, and Signal Processing, Volume 3, June 5-9, 2000, XP010507574, pages 1257-1260.

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	8B	6,442,522	08/27/2002	Carberry et al.	704	257	
	8C	6,446,114	09/03/2002	Bulfer et al.	709	206	
	8D	6,453,153	09/17/2002	Bowker et al.	455	67.4	
	8E	6,453,292	09/17/2002	Ramaswamy et al.	704	235	
	8F	6,456,711	09/24/2002	Cheung et al.	379	265.09	
	8G	6,456,974	09/24/2002	Baker *et al.*	704	270.1	
	8H	6,466,654	10/15/2002	Cooper *et al.*	379	88.01	
	8I	6,466,899	10/15/2002	Yano *et al.*	704	1	
	8J	6,470,315	10/22/2002	Netsch *et al.*	704	256	
	8K	6,487,494	11/26/2002	Odinak *et al.*	701	202	
	8L	6,487,495	11/26/2005	Gale *et al.*	701	209	
	8M	6,498,797	12/24/2002	Anerousis et al.	370	522	
	8N	6,499,013	12/24/2002	Weber	704	257	
	8O	6,501,833	12/31/2002	Phillips *et al.*	379	88.07	
	8P	6,501,834	12/31/2002	Milewski et al.	379	93.24	
	8Q	6,505,155	01/07/2003	Vanbuskirk *et al.*	704	246	
	8R	6,510,417	01/21/2003	Woods *et al.*	704	275	
	8S	6,513,006	01/28/2003	Howard *et al.*	704	257	
	8T	6,522,746	02/18/2003	Marchok *et al.*	379	406.03	
	8U	6,523,061	02/18/2003	Halverson et al.	709	202	
	8V	6,532,444	03/11/2003	Weber	704	257	
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	8Y	"Statement in Accordance with the Notice from the European Patent Office dated 1 October 2007 Concerning Business Methods (OJ EPO 11/2007, 592-593), XP002456252

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*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	9A	6,549,629	04/15/2003	Finn *et al.*	381	92	
	9B	6,553,372	04/22/2003	Brassell et al.	707	5	
	9C	6,556,970	04/29/2003	Sasaki *et al.*	704	257	
	9D	6,556,973	04/29/2003	Lewin	704	277	
	9E	6,560,576	05/06/2003	Cohen et al.	704	270	
	9F	6,560,590	05/06/2003	Shwe *et al.*	706	55	
	9G	6,567,778	05/20/2003	Chao Chang et al.	704	257	
	9H	6,567,797	05/20/2003	Schuetze *et al.*	707	2	
	9I	6,570,555	05/27/2003	Prevost *et al.*	345	156	
	9J	6,570,964	05/27/2003	Murveit et al.	379	67.1	
	9K	6,571,279	05/27/2003	Herz *et al.*	709	217	
	9L	6,574,597	06/03/2003	Mohri *et al.*	704	251	
	9M	6,574,624	06/03/2003	Johnson et al.	707	5	
	9N	6,578,022	06/10/2003	Foulger *et al.*	706	45	
	9O	6,581,103	06/17/2003	Dengler	709	231	
	9P	6,584,439	06/24/2003	Geilhufe *et al.*	704	270	
	9Q	6,587,858	07/01/2003	Strazza	707	102	
	9R	6,591,239	07/08/2003	McCall *et al.*	704	275	
	9S	6,594,257	07/15/2003	Doshi et al.	370	352	
	9T	6,594,367	07/15/2003	Marash *et al.*	381	92	
	9U	6,598,018	07/22/2003	Junqua	704	251	
	9V	6,601,026	07/29/2003	Appelt *et al.*	704	9	
	9W	6,604,075	08/05/2003	Brown *et al.*	704	270.1	

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	10A	6,604,077	08/05/2003	Dragosh et al.	704	270.1	
	10B	6,606,598	08/12/2003	Holthouse *et al.*	704	275	
	10C	6,611,692	08/26/2003	Raffel et al.	455	552	
	10D	6,614,773	09/02/2003	Maxemchuk	370	337	
	10E	6,615,172	09/02/2003	Bennett *et al.*	704	257	
	10F	6,622,119	09/16/2003	Ramaswamy *et al.*	704	9	
	10G	6,629,066	09/30/2003	Jackson et al.	704	9	
	10H	6,631,346	10/07/2003	Karaorman *et al.*	704	9	
	10I	6,631,351	10/07/2003	Ramachandran *et al.*	704	270	
	10J	6,633,846	10/14/2003	Bennett *et al.*	704	257	
	10K	6,636,790	10/21/2003	Lightner *et al.*	701	33	
	10L	6,643,620	11/04/2003	Contolini *et al.*	704	270	
	10M	6,650,747	11/18/2003	Bala et al.	379	265.06	
	10N	6,658,388	12/02/2003	Kleindienst *et al.*	704	275	
	10O	6,678,680	01/13/2004	Woo	707	6	
	10P	6,681,206	01/20/2004	Gorin *et al.*	704	243	
	10Q	6,691,151	02/10/2004	Cheyer et al.	709	202	
	10R	6,701,294	03/02/2004	Ball *et al.*	704	257	
	10S	6,704,396	03/09/2004	Parolkar *et al.*	379	88.17	
	10T	6,704,576	03/09/2004	Brachman *et al.*	455	503	
	10U	6,704,708	03/09/2004	Pickering	704	235	
	10V	6,707,421	03/16/2004	Drury *et al.*	342	357.1	
	10W	6,708,150	03/16/2004	Hirayama *et al.*	704	243	

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	11A	6,721,001	04/13/2004	Berstis	348	231.3	
	11B	6,721,633	04/13/2004	Funk *et al.*	701	1	
	11C	6,721,706	04/13/2004	Strubbe *et al.*	704	275	
	11D	6,726,636	04/27/2004	Der Ghazarian *et al.*	600	532	
	11E	6,735,592	05/11/2004	Neumann *et al.*	707	101	
	11F	6,739,556	05/25/2004	Langston	244	189	
	11G	6,741,931	05/25/2004	Kohut *et al.*	701	209	
	11H	6,742,021	05/25/2004	Halverson *et al.*	709	218	
	11I	6,745,161	06/01/2004	Arnold *et al.*	704	7	
	11J	6,751,591	06/15/2004	Gorin *et al.*	704	257	
	11K	6,751,612	06/15/2004	Schuetze *et al.*	707	4	
	11L	6,754,485	06/22/2004	Obradovich *et al.*	455	414.1	
	11M	6,754,627	06/22/2004	Woodward	704	235	
	11N	6,757,544	06/29/2004	Rangarajan *et al.*	455	456.1	
	11O	6,757,718	06/29/2004	Halverson *et al.*	709	218	
	11P	6,795,808	09/21/2004	Strubbe *et al.*	704	275	
	11Q	6,801,604	10/05/2004	Maes *et al.*	379	88.17	
	11R	6,801,893	10/05/2004	Backfried *et al.*	704	257	
	11S	6,813,341	11/02/2004	Mahoney	379	88.01	
	11T	6,829,603	12/07/2004	Chai *et al.*	707	5	
	11U	6,832,230	12/14/2004	Zilliacus *et al.*	707	203	
	11V	6,833,848	12/21/2004	Wolff *et al.*	345	719	
	11W	6,850,603	02/01/2005	Eberle *et al.*	379	88.16	

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	12A	6,856,990	02/15/2005	Barile *et al.*	707	10	
	12B	6,865,481	03/08/2005	Kawazoe *et al.*	701	211	
	12C	6,868,380	03/15/2005	Kroeker	704	240	
	12D	6,868,385	03/15/2005	Gerson	704	275	
	12E	6,873,837	03/29/2005	Yoshioka *et al.*	455	321	
	12F	6,877,001	04/05/2005	Wolf *et al.*	707	3	
	12G	6,877,134	04/05/2005	Fuller *et al.*	715	500.1	
	12H	6,901,366	05/31/2005	Kuhn *et al.*	704	275	
	12I	6,910,003	06/21/2005	Arnold *et al.*	704	4	
	12J	6,912,498	06/28/2005	Stevens *et al.*	704	235	
	12K	6,915,126	07/05/2005	Mazzara, Jr.	455	411	
	12L	6,928,614	08/09/2005	Everhart	715	728	
	12M	6,934,756	08/23/2005	Maes	709	227	
	12N	6,937,977	08/30/2005	Gerson	704	201	
	12O	6,937,982	08/30/2005	Kitaoka *et al.*	704	252	
	12P	6,944,594	09/13/2005	Busayapongchai *et al.*	704	275	
	12Q	6,950,821	09/27/2005	Faybishenko *et al.*	707	10	
	12R	6,954,755	10/11/2005	Reisman	707	10	
	12S	6,959,276	10/25/2005	Droppo *et al.*	704	226	
	12T	6,961,700	11/01/2005	Mitchell *et al.*	704	235	
	12U	6,963,759	11/08/2005	Gerson	455	563	
	12V	6,968,311	11/22/2005	Knockeart *et al.*	704	270	
	12W	6,973,387	12/06/2005	Masclet *et al.*	701	211	

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	13A	6,975,993	12/13/2005	Keiller	704	275	
	13B	6,980,092	12/27/2005	Turnbull *et al.*	340	425.5	
	13C	6,983,055	01/03/2006	Luo	381	313	
	13D	6,990,513	01/24/2006	Belfiore *et al.*	709	203	
	13E	6,996,531	02/07/2006	Korall *et al.*	704	270	
	13F	7,016,849	03/21/2006	Arnold *et al.*	704	275	
	13G	7,020,609	03/28/2006	Thrift *et al.*	704	270.1	
	13H	7,024,364	04/04/2006	Guerra *et al.*	704	270	
	13I	7,027,586	04/11/2006	Bushey *et al.*	379	265.09	
	13J	7,027,975	04/11/2006	Pazandak *et al.*	704	9	
	13K	7,035,415	04/25/2006	Belt *et al.*	381	92	
	13L	7,036,128	04/25/2006	Julia *et al.*	719	317	
	13M	7,043,425	05/09/2006	Pao	704	211	
	13N	7,054,817	05/30/2006	Shao	704	270	
	13O	7,058,890	06/06/2006	George *et al.*	715	728	
	13P	7,062,488	06/13/2006	Reisman	707	8	
	13Q	7,069,220	06/27/2006	Coffman *et al.*	704	275	
	13R	7,072,834	07/04/2006	Zhou	704	244	
	13S	7,076,362	07/11/2006	Ohtsuji *et al.*	701	211	
	13T	7,082,469	07/25/2006	Gold *et al.*	709	231	
	13U	7,085,708	08/01/2006	Manson	704	9	
	13V	7,092,928	08/15/2006	Elad *et al.*	706	60	
	13W	7,107,210	09/12/2006	Deng *et al.*	704	226	

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	14A	7,107,218	09/12/2006	Preston	704	270	
	14B	7,110,951	09/19/2006	Lemelson *et al.*	704	270	
	14C	7,127,400	10/24/2006	Koch	704	270.1	
	14D	7,130,390	10/31/2006	Abburi	379	88.17	
	14E	7,136,875	11/14/2006	Anderson *et al.*	707	104.1	
	14F	7,137,126	11/14/2006	Coffman *et al.*	719	328	
	14G	7,143,037	11/28/2006	Chestnut	704	251	
	14H	7,143,039	11/28/2006	Stifelman *et al.*	704	270	
	14I	7,146,319	12/05/2006	Hunt	704	254	
	14J	7,149,696	12/12/2006	Shimizu *et al.*	705	1	
	14K	7,165,028	01/16/2007	Gong	704	233	
	14L	7,170,993	01/30/2007	Anderson *et al.*	379	265.09	
	14M	7,171,291	01/30/2007	Obradovich	701	29	
	14N	7,174,300	02/06/2007	Bush	704	275	
	14O	7,177,798	02/13/2007	Hsu *et al.*	704	9	
	14P	7,184,957	02/27/2007	Brookes *et al.*	704	246	
	14Q	7,190,770	03/13/2007	Ando *et al.*	379	88.01	
	14R	7,197,069	03/27/2007	Agazzi *et al.*	375	233	
	14S	7,197,460	03/27/2007	Gupta *et al.*	704	270.1	
	14T	7,203,644	04/10/2007	Anderson *et al.*	704	246	
	14U	7,206,418	04/17/2007	Yang *et al.*	381	92	
	14V	7,207,011	04/17/2007	Mulvey *et al.*	715	812	
	14W	7,215,941	05/08/2007	Beckmann *et al.*	455	404.1	

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	15A	7,228,276	06/05/2007	Omote *et al.*	704	243	
	15B	7,231,343	06/12/2007	Treadgold *et al.*	704	9	
	15C	7,236,923	06/26/2007	Gupta	704	9	
	15D	7,254,482	08/07/2007	Kawasaki *et al.*	701	211	
	15E	7,272,212	09/18/2007	Eberle *et al.*	379	88.17	
	15F	7,277,854	10/02/2007	Bennett *et al.*	704	257	
	15G	7,283,829	10/16/2007	Christenson *et al.*	455	461	
	15H	7,283,951	10/16/2007	Marchisio *et al.*	704	9	
	15I	7,289,606	10/30/2007	Sibal *et al.*	379	52	
	15J	7,299,186	11/20/2007	Kuzunuki *et al.*	704	270.1	
	15K	7,301,093	11/27/2007	Sater *et al.*	84	615	
	15L	7,305,381	12/04/2007	Poppink *et al.*	1	1	
	15M	7,321,850	01/22/2008	Wakita	704	10	
	15N	7,328,155	02/05/2008	Endo *et al.*	704	251	
	15O	7,337,116	02/26/2008	Charlesworth *et al.*	704	254	
	15P	7,340,040	03/04/2008	Saylor *et al.*	379	67.1	
	15Q	7,366,285	04/29/2008	Parolkar *et al.*	379	88.17	
	15R	7,366,669	04/29/2008	Nishitani *et al.*	704	256	
	15S	7,376,645	05/20/2008	Bernard	707	3	
	15T	7,386,443	06/10/2008	Parthasarathy *et al.*	704	201	
	15U	7,398,209	07/08/2008	Kennewick *et al.*	704	255	
	15V	7,406,421	07/29/2008	Odinak *et al.*	704	275	
	15W	7,415,414	08/19/2008	Azara *et al.*	704	270	

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	16A	7,421,393	09/02/2008	Di Fabbrizio *et al.*	704	275	
	16B	7,424,431	09/09/2008	Greene *et al.*	704	270	
	16C	7,447,635	11/04/2008	Konopka *et al.*	704	275	
	16D	7,451,088	11/11/2008	Ehlen *et al.*	704	270.1	
	16E	7,454,608	11/18/2008	Gopalakrishnan *et al.*	713	100	
	16F	7,461,059	12/02/2008	Richardson *et al.*	707	5	
	16G	7,472,020	12/30/2008	Brulle-Drews	701	211	
	16H	7,472,060	12/30/2008	Gorin *et al.*	704	240	
	16I	7,472,075	12/30/2008	Odinak *et al.*	705	26	
	16J	7,477,909	01/13/2009	Roth	455	466	
	16K	7,478,036	01/13/2009	Shen *et al.*	704	9	
	16L	7,487,088	02/03/2009	Gorin *et al.*	704	240	
	16M	7,487,110	02/03/2009	Bennett *et al.*	705	26	
	16N	7,493,259	02/17/2009	Jones *et al.*	704	257	
	16O	7,493,559	02/17/2009	Wolff *et al.*	715	727	
	16P	7,502,672	03/10/2009	Kolls	701	29	
	16Q	7,502,738	03/10/2009	Kennewick *et al.*	704	257	
	16R	7,516,076	04/07/2009	Walker *et al.*	704	275	
	16S	7,529,675	05/05/2009	Maes	704	270.1	
	16T	7,536,297	05/19/2009	Byrd *et al.*	704	10	
	16U	7,536,374	05/19/2009	Au	706	55	
	16V	7,542,894	06/02/2009	Murata	704	9	
	16W	7,546,382	06/09/2009	Healey *et al.*	709	246	

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	17A	7,548,491	06/16/2009	Macfarlane	367	198	
	17B	7,552,054	06/23/2009	Stifelman *et al.*	704	270	
	17C	7,558,730	07/07/2009	Davis *et al.*	704	235	
	17D	7,574,362	08/11/2009	Walker *et al.*	704	275	
	17E	7,577,244	08/18/2009	Taschereau	379	218.01	
	17F	7,606,708	10/20/2009	Hwang	704	257	
	17G	7,620,549	11/17/2009	Di Cristo *et al.*	704	257	
	17H	7,634,409	12/15/2009	Kennewick *et al.*	704	257	
	17I	7,640,006	12/29/2009	Portman *et al.*	455	412.1	
	17J	7,640,160	12/29/2009	Di Cristo *et al.*	704	257	
	17K	7,640,272	12/29/2009	Mahajan *et al.*	707	104.1	
	17L	7,676,365	03/09/2010	Hwang *et al.*	704	240	
	17M	7,676,369	03/09/2010	Fujimoto *et al.*	704	270	
	17N	7,684,977	03/23/2010	Morikawa	704	211	
	17O	7,693,720	04/06/2010	Kennewick *et al.*	704	275	
	17P	7,729,916	06/01/2010	Coffman *et al.*	704	270	
	17Q	7,729,918	06/01/2010	Walker *et al.*	704	275	
	17R	7,729,920	06/01/2010	Chaar *et al.*	704	275	
	17S	7,734,287	06/08/2010	Ying	455	423	
	17T	7,748,021	06/29/2010	Obradovich	725	105	
	17U	7,788,084	08/31/2010	Brun *et al.*	704	7	
	17V	7,801,731	09/21/2010	Odinak *et al.*	704	275	
	17W	7,809,570	10/05/2010	Kennewick *et al.*	704	257	

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*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	18A	7,818,176	10/19/2010	Freeman *et al.*	704	270	
	18B	7,831,426	11/09/2010	Bennett	704	252	
	18C	7,831,433	11/09/2010	Belvin *et al.*	704	275	
	18D	7,856,358	12/21/2010	Ho	704	270	
	18E	7,873,519	01/18/2011	Bennett	704	257	
	18F	7,873,523	01/18/2011	Potter *et al.*	704	275	
	18G	7,873,654	01/18/2011	Bernard	707	769	
	18H	7,881,936	02/01/2011	Longe *et al.*	704	257	
	18I	7,890,324	02/15/2011	Bangalore *et al.*	704	231	
	18J	7,894,849	02/22/2011	Kass *et al.*	455	550.1	
	18K	7,902,969	03/08/2011	Obradovich	340	439	
	18L	7,917,367	03/29/2011	Di Cristo *et al.*	704	270.1	
	18M	7,920,682	04/05/2011	Byrne *et al.*	379	88.18	
	18N	7,949,529	05/24/2011	Weider *et al.*	704	270	
	18O	7,949,537	05/24/2011	Walker *et al.*	704	275	
	18P	7,953,732	05/31/2011	Frank *et al.*	707	724	
	18Q	7,974,875	07/05/2011	Quilici *et al.*	705	14.4	
	18R	7,983,917	07/19/2011	Kennewick *et al.*	704	257	
	18S	7,984,287	07/19/2011	Gopalakrishnan *et al.*	713	100	
	18T	8,005,683	08/23/2011	Tessel *et al.*	704	275	
	18U	8,015,006	09/06/2011	Kennewick *et al.*	704	236	
	18V	8,060,367	11/15/2011	Keaveney	704	247	
	18W	8,069,046	11/29/2011	Kennewick *et al.*	704	257	

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*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	19A	8,073,681	12/06/2011	Baldwin *et al.*	704	9	
	19B	8,077,975	12/13/2011	Ma *et al.*	382	187	
	19C	8,082,153	12/20/2011	Coffman *et al.*	704	270	
	19D	8,086,463	12/27/2011	Ativanichayaphong *et al.*	704	275	
	19E	8,112,275	02/07/2012	Kennewick *et al.*	704	240	
	19F	8,140,327	03/20/2012	Kennewick *et al.*	704	226	
	19G	8,140,335	03/20/2012	Kennewick *et al.*	704	257	
	19H	8,145,489	03/27/2012	Freeman *et al.*	704	257	
	19I	8,150,694	04/03/2012	Kennewick *et al.*	704	257	
	19J	8,155,962	04/10/2012	Kennewick *et al.*	704	257	
	19K	8,170,867	05/01/2012	Germain	704	9	
	19L	8,195,468	06/05/2012	Weider *et al.*	704	275	
	19M	8,219,399	07/10/2012	Lutz *et al.*	704	270	
	19N	8,219,599	07/10/2012	Tunstall-Pedoe	707	955	
	19O	8,224,652	07/17/2012	Wang *et al.*	704	275	
	19P	8,255,224	08/28/2012	Singleton *et al.*	704	275	
	19Q	8,326,627	12/04/2012	Kennewick *et al.*	704	257	
	19R	8,326,634	12/04/2012	Di Cristo *et al.*	704	270.1	
	19S	8,326,637	12/04/2012	Baldwin *et al.*	704	275	
	19T	8,332,224	12/11/2012	Di Cristo *et al.*	704	257	
	19U	8,370,147	02/05/2013	Kennewick *et al.*	704	257	
	19V	8,447,607	05/21/2013	Weider *et al.*	704	250	
	19W	8,452,598	05/28/2013	Kennewick *et al.*	704	257	

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	20A	8,509,403	08/13/2013	Chiu *et al.*	379	114.13	
	20B	8,515,765	08/20/2013	Baldwin et al.	704	275	
	20C	8,527,274	09/03/2013	Freeman *et al.*	704	257	
	20D	8,589,161	11/19/2013	Kennewick *et al.*	704	252	
	20E	8,620,659	12/31/2013	Di Cristo et al.	704	257	
	20F	2001/0041980	11/15/2001	Howard *et al.*	704	270	
	20G	2001/0049601	12/06/2001	Kroeker *et al.*	704	254	
	20H	2001/0054087	12/20/2001	Flom *et al.*	709	218	
	20I	2002/0015500	02/07/2002	Belt *et al.*	381	66	
	20J	2002/0022927	02/21/2002	Lemelson *et al.*	701	301	
	20K	2002/0029261	03/07/2002	Shibata	709	219	
	20L	2002/0032752	03/14/2002	Gold *et al.*	709	218	
	20M	2002/0035501	03/21/2002	Handel *et al.*	705	10	
	20N	2002/0049535	04/25/2002	Rigo *et al.*	701	211	
	20O	2002/0049805	04/25/2002	Yamada *et al.*	709	202	
	20P	2002/0065568	05/30/2002	Silfvast *et al.*	700	94	
	20Q	2002/0067839	06/06/2002	Heinrich	381	110	
	20R	2002/0069059	06/06/2002	Smith	704	257	
	20S	2002/0069071	06/06/2002	Knockeart et al.	704	275	
	20T	2002/0082911	06/27/2002	Dunn *et al.*	705	14	
	20U	2002/0087326	07/04/2002	Lee *et al.*	704	270.1	
	20V	2002/0087525	07/04/2002	Abbott *et al.*	707	3	
	20W	2002/0107694	08/08/2002	Lerg	704	273	

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	21A	2002/0120609	08/29/2002	Lang *et al.*	707	1	
	21B	2002/0124050	09/05/2002	Middeljans	709	203	
	21C	2002/0133402	09/19/2002	Faber *et al.*	705	14	
	21D	2002/0138248	09/26/2002	Corston-Oliver *et al.*	704	1	
	21E	2002/0143532	10/03/2002	McLean *et al.*	704	235	
	21F	2002/0143535	10/03/2002	Kist *et al.*	704	251	
	21G	2002/0161646	10/31/2002	Gailey *et al.*	705	14	
	21H	2002/0173333	11/21/2002	Buchholz *et al.*	455	527	
	21I	2002/0173961	11/21/2002	Guerra	704	258	
	21J	2002/0184373	12/05/2002	Maes	709	228	
	21K	2002/0188602	12/12/2002	Stubler *et al.*	707	3	
	21L	2002/0198714	12/26/2002	Zhou	704	252	
	21M	2003/0014261	01/16/2003	Kageyama	704	275	
	21N	2003/0016835	01/23/2003	Elko *et al.*	381	92	
	21O	2003/0064709	04/03/2003	Gailey *et al.*	455	412	
	21P	2003/0065427	04/03/2003	Funk *et al.*	701	1	
	21Q	2003/0069734	04/10/2003	Everhart	704	275	
	21R	2003/0088421	05/08/2003	Maes *et al.*	704	270.1	
	21S	2003/0097249	05/22/2003	Walker *et al.*	704	1	
	21T	2003/0110037	06/12/2003	Walker *et al.*	704	257	
	21U	2003/0112267	06/19/2003	Belrose	345	728	
	21V	2003/0115062	06/19/2003	Walker *et al.*	704	258	
	21W	2003/0120493	06/26/2003	Gupta	704	270.1	

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	22A	2003/0135488	07/17/2003	Amir *et al.*	707	3	
	22B	2003/0144846	07/31/2003	Denenberg *et al.*	704	277	
	22C	2003/0158731	08/21/2003	Falcon *et al.*	704	231	
	22D	2003/0161448	08/28/2003	Parolkar *et al.*	379	88.17	
	22E	2003/0182132	09/25/2003	Niemoeller	704	275	
	22F	2003/0204492	10/30/2003	Wolf *et al.*	707	3	
	22G	2003/0206640	11/06/2003	Malvar *et al.*	381	93	
	22H	2003/0212550	11/13/2003	Ubale	704	215	
	22I	2003/0212558	11/13/2003	Matula	704	260	
	22J	2003/0212562	11/13/2003	Patel *et al.*	704	275	
	22K	2003/0225825	12/04/2003	Healey *et al.*	709	203	
	22L	2003/0236664	12/25/2003	Sharma	704	251	
	22M	2004/0006475	01/08/2004	Ehlen *et al.*	704	270.1	
	22N	2004/0010358	01/15/2004	Oesterling *et al.*	701	49	
	22O	2004/0025115	02/05/2004	Sienel *et al.*	715	513	
	22P	2004/0044516	03/04/2004	Kennewick *et al.*	704	5	
	22Q	2004/0098245	05/20/2004	Walker *et al.*	704	1	
	22R	2004/0117179	06/17/2004	Balasuriya	704	231	
	22S	2004/0117804	06/17/2004	Scahill *et al.*	719	320	
	22T	2004/0140989	07/22/2004	Papageorge	345	700	
	22U	2004/0158555	08/12/2004	Seedman *et al.*	707	3	
	22V	2004/0166832	08/26/2004	Portman *et al.*	455	412.1	
	22W	2004/0167771	08/26/2004	Duan *et al.*	704	10	

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	23A	2004/0193408	09/30/2004	Hunt	704	209	
	23B	2004/0193420	09/30/2004	Kennewick *et al.*	704	257	
	23C	2004/0199375	10/07/2004	Ehsani *et al.*	704	4	
	23D	2004/0205671	10/14/2004	Sukehiro *et al.*	715	532	
	23E	2004/0243417	12/02/2004	Pitts, III *et al.*	704	276	
	23F	2005/0015256	01/20/2005	Kargman	704	272	
	23G	2005/0021334	01/27/2005	Iwahashi	704	240	
	23H	2005/0021470	01/27/2005	Martin *et al.*	705	51	
	23I	2005/0021826	01/27/2005	Kumar	709	232	
	23J	2005/0033574	02/10/2005	Kim *et al.*	704	251	
	23K	2005/0033582	02/10/2005	Gadd *et al.*	704	277	
	23L	2005/0043940	02/24/2005	Elder	704	9	
	23M	2005/0114116	05/26/2005	Fiedler	704	201	
	23N	2005/0125232	06/09/2005	Gadd	704	270.1	
	23O	2005/0137850	06/23/2005	Odell	704	4	
	23P	2005/0137877	06/23/2005	Oesterling *et al.*	704	275	
	23Q	2005/0143994	06/30/2005	Mori *et al.*	704	235	
	23R	2005/0216254	09/29/2005	Gupta *et al.*	704	9	
	23S	2005/0234727	10/20/2005	Chiu	704	270.1	
	23T	2005/0246174	11/03/2005	DeGolia	704	270	
	23U	2005/0283752	12/22/2005	Fruchter *et al.*	717	100	
	23V	2006/0041431	02/23/2006	Maes	704	270.1	
	23W	2006/0047509	03/02/2006	Ding *et al.*	704	231	

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	24A	2006/0206310	09/14/2006	Ravikumar *et al.*	704	9	
	24B	2006/0217133	09/28/2006	Christenson *et al.*	455	461	
	24C	2006/0285662	12/21/2006	Yin *et al.*	379	88.16	
	24D	2007/0033005	02/08/2007	Cristo *et al.*	704	9	
	24E	2007/0033020	02/08/2007	(Kelleher) Francois *et al.*	704	226	
	24F	2007/0038436	02/15/2007	Cristo *et al.*	704	9	
	24G	2007/0043868	02/22/2007	Kumar *et al.*	709	226	
	24H	2007/0050191	03/01/2007	Weider *et al.*	704	275	
	24I	2007/0055525	03/08/2007	Kennewick *et al.*	704	257	
	24J	2007/0061067	03/15/2007	Zeinstra *et al.*	701	200	
	24K	2007/0061735	03/15/2007	Hoffberg *et al.*	715	744	
	24L	2007/0073544	03/29/2007	Millett *et al.*	704	277	
	24M	2007/0078708	04/05/2007	Yu *et al.*	705	14	
	24N	2007/0078709	04/05/2007	Rajaram	705	14	
	24O	2007/0118357	05/24/2007	Kasravi *et al.*	704	10	
	24P	2007/0135101	06/14/2007	Ramati *et al.*	455	414.1	
	24Q	2007/0146833	06/28/2007	Satomi *et al.*	358	537	
	24R	2007/0162296	07/12/2007	Altberg *et al.*	705	1	
	24S	2007/0179778	08/02/2007	Gong *et al.*	704	9	
	24T	2007/0186165	08/09/2007	Maislos *et al.*	715	728	
	24U	2007/0198267	08/23/2007	Jones *et al.*	704	257	
	24V	2007/0203736	08/30/2007	Ashton	705	1	
	24W	2007/0214182	09/13/2007	Rosenberg	707	104.1	

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	25A	2007/0250901	10/25/2007	McIntire *et al.*	725	146	
	25B	2007/0265850	11/15/2007	Kennewick *et al.*	704	257	
	25C	2007/0299824	12/27/2007	Pan *et al.*	707	3	
	25D	2008/0034032	02/07/2008	Healey *et al.*	709	203	
	25E	2008/0065386	03/13/2008	Cross *et al.*	704	270	
	25F	2008/0091406	04/17/2008	Baldwin *et al.*	704	4	
	25G	2008/0103761	05/01/2008	Printz *et al.*	704	9	
	25H	2008/0109285	05/08/2008	Reuther *et al.*	705	7	
	25I	2008/0115163	05/15/2008	Gilboa *et al.*	725	34	
	25J	2008/0133215	06/05/2008	Sarukkai	704	2	
	25K	2008/0140385	06/12/2008	Mahajan *et al.*	704	9	
	25L	2008/0147410	06/19/2008	Odinak	704	270.1	
	25M	2008/0177530	07/24/2008	Cross *et al.*	704	4	
	25N	2008/0189110	08/07/2008	Freeman *et al.*	704	251	
	25O	2008/0235023	09/25/2008	Kennewick *et al.*	704	257	
	25P	2008/0235027	09/25/2008	Cross	704	270.1	
	25Q	2008/0319751	12/25/2008	Kennewick *et al.*	704	257	
	25R	2009/0052635	02/26/2009	Jones *et al.*	379	88.02	
	25S	2009/0067599	03/12/2009	Agarwal *et al.*	379	114.21	
	25T	2009/0076827	03/19/2009	Bulitta *et al.*	704	275	
	25U	2009/0106029	04/23/2009	DeLine *et al.*	704	275	
	25V	2009/0117885	05/07/2009	Roth	455	414.3	
	25W	2009/0144271	06/04/2009	Richardson *et al.*	707	5	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED
/E. Yen/	05/21/2014

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /E.Y./

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0422643	13/898,045
	Applicant(s)	
	Chris WEIDER *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	May 20, 2013	2658

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	26A	2009/0150156	06/11/2009	Kennewick *et al.*	704	257	
	26B	2009/0171664	07/02/2009	Kennewick *et al.*	704	257	
	26C	2009/0216540	08/27/2009	Tessel *et al.*	704	275	
	26D	2009/0271194	10/29/2009	Davis *et al.*	704	235	
	26E	2009/0273563	11/05/2009	Pryor	345	157	
	26F	2009/0276700	11/05/2009	Anderson *et al.*	715	700	
	26G	2009/0299745	12/03/2009	Kennewick *et al.*	704	257	
	26H	2009/0307031	12/10/2009	Winkler *et al.*	705	7	
	26I	2009/0313026	12/17/2009	Coffman *et al.*	704	275	
	26J	2010/0023320	01/28/2010	Di Cristo *et al.*	704	9	
	26K	2010/0029261	02/04/2010	Mikkelsen *et al.*	455	419	
	26L	2010/0049501	02/25/2010	Kennewick *et al.*	704	9	
	26M	2010/0049514	02/25/2010	Kennewick *et al.*	704	233	
	26N	2010/0057443	03/04/2010	Di Cristo *et al.*	704	9	
	26O	2010/0063880	03/11/2010	Atsmon *et al.*	705	14.53	
	26P	2010/0036967	02/11/2010	Caine *et al.*	709	236	
	26Q	2010/0185512	07/22/2010	Borger *et al.*	705	14.49	
	26R	2010/0145700	06/10/2010	Kennewick *et al.*	704	257	
	26S	2010/0204986	08/12/2010	Kennewick *et al.*	704	226	
	26T	2010/0204994	08/12/2010	Kennewick *et al.*	704	257	
	26U	2010/0217604	08/26/2010	Baldwin *et al.*	704	275	
	26V	2010/0286985	11/11/2010	Kennewick *et al.*	704	257	
	26W	2010/0299142	11/25/2010	Freeman *et al.*	704	9	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED
/E. Yen/	05/21/2014

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /E.Y./

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0422643	13/898,045
	Applicant(s)	
	Chris WEIDER *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	May 20, 2013	2658

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	27A	2010/0312566	12/09/2010	Odinak *et al.*	704	275	
	27B	2011/0112827	05/12/2011	Kennewick *et al.*	704	9	
	27C	2011/0112921	05/12/2011	Kennewick *et al.*	705	26.1	
	27D	2011/0131036	06/02/2011	Di Cristo *et al.*	704	9	
	27E	2011/0131045	06/02/2011	Cristo *et al.*	704	249	
	27F	2011/0231182	09/22/2011	Weider *et al.*	704	9	
	27G	2011/0231188	09/22/2011	Kennewick *et al.*	704	236	
	27H	2012/0022857	01/26/2012	Baldwin *et al.*	704	9	
	27I	2012/0101809	04/26/2012	Kennewick *et al.*	704	9	
	27J	2012/0101810	04/26/2012	Kennewick *et al.*	704	9	
	27K	2012/0109753	05/03/2012	Kennewick *et al.*	705	14.58	
	27L	2012/0150636	06/14/2012	Freeman *et al.*	705	14.49	
	27M	2012/0278073	11/01/2012	Weider et al.	704	235	
	27N	2013/0054228	02/28/2013	Baldwin *et al.*	704	9	
	27O	2013/0211710	08/15/2013	Kennewick *et al.*	701	419	
	27P	2013/0297293	11/07/2013	Di Cristo *et al.*	704	9	
	27Q	2013/0304473	11/14/2013	Baldwin *et al.*	704	257	
	27R	2013/0339022	12/19/2013	Baldwin *et al.*	704	257	
	27S	2014/0012577	01/09/2014	Freeman *et al.*	704	249	
	27T	2014/0108013	04/17/2014	Di Cristo *et al.*	704	254	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED
/E. Yen/	05/21/2014

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /E.Y./

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0422643	13/898,045
	Applicant(s)	
	Chris WEIDER *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	May 20, 2013	2658

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
/E.Y./	1A	8,719,009	05/06/2014	Baldwin et al.	704	9	
/E.Y./	1B	8,719,026	05/06/2014	Kennewick *et al.*	704	257	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED
/E. Yen/	05/21/2014

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13898045	WEIDER ET AL.
	Examiner	**Art Unit**
	ERIC YEN	2658

CPC						
Symbol					**Type**	**Version**
G10L		15	/	22	I	2013-01-01
H04M		2250	/	74	A	2013-01-01
G10L		21	/	06	F	2013-01-01
G06F		17	/	30864	I	2013-01-01
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			/			
			/			

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
			/					
			/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	27	
/ERIC YEN/ Primary Examiner.Art Unit 2658	5/21/14	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	50	7

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Page 00478

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13898045	WEIDER ET AL.
	Examiner	**Art Unit**
	ERIC YEN	2658

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**
704	9

CROSS REFERENCE(S)					
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**				
704	270	270.1	275		

INTERNATIONAL CLASSIFICATION					
CLAIMED					**NON-CLAIMED**
G	1	0	L	25 / 00 (2013.0)	
G	1	0	L	21 / 00 (2013.0)	
G	0	6	F	17 / 27 (2006.0)	

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	27	
/ERIC YEN/ Primary Examiner.Art Unit 2658	5/21/14	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	50	7

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13898045	WEIDER ET AL.
	Examiner	**Art Unit**
	ERIC YEN	2658

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	50	17	67												
2	51	18	68												
3	52	19	69												
4	53	20	70												
5	54	21	71												
6	55	22	72												
7	56	23	73												
8	57	24	74												
9	58	25	75												
10	59	26	76												
11	60	27	77												
12	61														
13	62														
14	64														
15	65														
16	66														

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 27	
/ERIC YEN/ Primary Examiner.Art Unit 2658 (Primary Examiner)	5/21/14 (Date)	O.G. Print Claim(s) 50	O.G. Print Figure 7

Google Exhibit 1012
Page 00480

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13898045	WEIDER ET AL.
	Examiner	Art Unit
	ERIC YEN	2658

CPC- SEARCHED		
Symbol	Date	Examiner
G10L 15/19, 15/22, 15/18	1/22/14	EY

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
704	9, 270-275	1/22/14	EY
704	9, 270-275	5/21/14	EY

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Search (attached)	1/22/14	EY

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
704	9, 270-275	5/21/14	EY

UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/898,045	05/20/2013	Chris Weider	090611-0422643

CONFIRMATION NO. 6157

909
Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

POA ACCEPTANCE LETTER

OC000000068764993

Date Mailed: 06/05/2014

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 05/27/2014.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/nfissha/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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Page 00482

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/898,045	05/20/2013	2658	1080	090611-0422643	1	1

CONFIRMATION NO. 6157

CORRECTED FILING RECEIPT

909
Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

OC000000068765030

Date Mailed: 06/05/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Chris Weider, Everett, WA;
Richard Kennewick, Woodinville, WA;
Mike Kennewick, Bellevue, WA;
Robert A. Kennewick, Seattle, WA;
Philippe Di Cristo, Bellevue, WA;
Samuel Menaker, Bellevue, WA;
Lynn Elise Armstrong, Woodinville, WA;

Applicant(s)

VoiceBox Technologies Corporation, Bellevue, WA

Assignment For Published Patent Application

VoiceBox Technologies Corporation, Bellevue, WA

Power of Attorney: The patent practitioners associated with Customer Number 00909

Domestic Priority data as claimed by applicant

This application is a CON of 13/488,299 06/04/2012 PAT 8447607
which is a CON of 13/084,197 04/11/2011 PAT 8195468
which is a DIV of 11/212,693 08/29/2005 PAT 7949529

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 06/12/2013

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Page 00483

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/898,045**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

Preliminary Class

704

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Page 00484

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/898,045	05/20/2013	Chris Weider	090611-0422643	6157

7590 06/09/2014

Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

EXAMINER	
YEN, ERIC L	

ART UNIT	PAPER NUMBER
2658	

NOTIFICATION DATE	DELIVERY MODE
06/09/2014	ELECTRONIC

Letter Withdrawing a Notice Requiring Inventor's Oath or Declaration

The Notice Requiring Inventor's Oath or Declaration mailed on 06/03/2014 was sent in error, and is hereby withdrawn. The time period set forth in the Notice of Allowance and Fee(s) Due to file a reply and pay the required fees continues to run from the mailing date of the Notice of Allowance and Fee(s) Due. Any time period set forth in the Notice of Allowability continues to run from the mailing date of the Notice of Allowability.

Questions relating to this Notice should be directed to the Application Assistance Unit at 571-272-4200.

(571)-272-4200 or 1(888)-786-0101
Patent Publication Branch
Office of Data Management

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

909 7590 06/03/2014
Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/898,045	05/20/2013	Chris Weider	090611-0422643	6157

TITLE OF INVENTION: MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	09/03/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
YEN, ERIC L	2658	704-235000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Pillsbury Winthrop Shaw Pittman LLP
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: VoiceBox Technologies Corporation

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Bellevue, Washington

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ■ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
- ■ Issue Fee
- ❑ Publication Fee (No small entity discount permitted)
- ❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ■ The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 03-3975 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ❑ Applicant certifying micro entity status. See 37 CFR 1.29
  NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27
  NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status.
  NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Ngai B. Zhang/ Date August 26, 2014

Typed or printed name Ngai B. Zhang Registration No. 65,473

Google Exhibit 1012

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

INVENTORS :	Chris WEIDER *et al.*	CONFIRMATION NO.:	6157
SERIAL NUMBER :	13/898,045	EXAMINER:	Eric L. Yen
FILING DATE :	May 20, 2013	ART UNIT:	2658
FOR :	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicant hereby makes of record in the above-identified application the documents listed on the attached Form PTO-1449.

Applicant reserves the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This Supplemental Information Disclosure Statement is being filed more than three months after the filing date of a national application other than a continued prosecution

Google Exhibit 1012
Page 00488

application under 37 C.F.R. § 1.53(d), or more than three months after the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in an international application, and after the mailing date of any of a Final Action under 37 C.F.R. § 1.113, a Notice of Allowance under 37 C.F.R. § 1.311, or an action that otherwise closes prosecution in the application, but on or before payment of the Issue Fee. 37 C.F.R. § 1.97(d).

Document B was cited by the U.S. Patent Office in co-pending Application Serial No. 13/690,997, filed November 30, 2012, in an Office Action dated August 1, 2014. I hereby certify that no item of information contained in this Supplemental Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to my knowledge after making reasonable inquiry, no item of information contained in this Supplemental Information Disclosure Statement was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Supplemental Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

Please charge the $90.00 fee [37 C.F.R. § 1.17(p)] to Deposit Account No. 03-3975. In addition, please charge any fee deficiencies, or credit any overpayment, to Deposit Account No. 03-3975 as needed to ensure consideration of the Supplemental Information Disclosure Statement.

Google Exhibit 1012
Page 00489

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP

By /Ngai B. Zhang/
Ngai B. Zhang
Registration No.: 65,473

Customer No.
00909

P. O. Box 10500
McLean, Virginia 22102
Telephone: (703) 770-7900
Telefax: (703) 770-7901

Dated: August 26, 2014

Google Exhibit 1012
Page 00490

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0422643	13/898,045
	Inventor(s)	
	Chris WEIDER *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	May 20, 2013	2658

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	2004/0122674	06/24/2004	Bangalore *et al.*	704	276	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

Electronic Patent Application Fee Transmittal

Application Number:	13898045
Filing Date:	20-May-2013
Title of Invention:	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS
First Named Inventor/Applicant Name:	Chris Weider
Filer:	Ngai Bing Zhang/Susan Trader
Attorney Docket Number:	090611-0422643

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	2501	1	480	480
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	2806	1	90	90
		Total in USD ($)		**570**

Electronic Acknowledgement Receipt

EFS ID:	19962567
Application Number:	13898045
International Application Number:	
Confirmation Number:	6157
Title of Invention:	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS
First Named Inventor/Applicant Name:	Chris Weider
Customer Number:	909
Filer:	Ngai Bing Zhang/Susan Trader
Filer Authorized By:	Ngai Bing Zhang
Attorney Docket Number:	090611-0422643
Receipt Date:	26-AUG-2014
Filing Date:	20-MAY-2013
Time Stamp:	09:28:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$570
RAM confirmation Number	7667
Deposit Account	033975
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	0422643_IssueFee.pdf	88939 4cd1dcc11b00d10ada2cb4b6ebf7724f56cdface	no	1
Warnings:					
Information:					
2		0422643_SIDS.pdf	11245542 45c6e68fe8ec1cbcf139e9adc9fdab26b0ddc7a2	yes	22

Multipart Description/PDF files in .zip description

Document Description	Start	End
Transmittal Letter	1	3
Information Disclosure Statement (IDS) Form (SB08)	4	4
Transmittal Letter	5	21
Information Disclosure Statement (IDS) Form (SB08)	22	22

Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32155 f790c35761171835db2544cb9bc6deed390e2e09	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	11366636		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

FILED WITH THE SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

INFORMATION DISCLOSURE CITATION IN AN APPLICATION

Form PTO-1449

Docket Number	Application Number
090611-0422643	13/898,045
Inventor(s)	
Chris WEIDER *et al.*	
Filing Date	Group Art Unit
May 20, 2013	2658

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	8,738,380	05/27/2014	Baldwin *et al.*	704	257	
	B	2008/0154604	06/26/2008	Sathish *et al.*	704	257	
	C	2014/0156278	06/05/2014	Kennewick *et al.*	704	254	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

INVENTORS :	Chris WEIDER *et al.*	CONFIRMATION NO.:	6157
SERIAL NUMBER :	13/898,045	EXAMINER:	Eric L. Yen
FILING DATE :	May 20, 2013	ART UNIT:	2658
FOR :	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS		

FURTHER SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicant hereby makes of record in the above-identified application the document listed on the attached Form PTO-1449.

Applicant reserves the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This Further Supplemental Information Disclosure Statement is being filed more than three months after the filing date of a national application other than a continued prosecution application under 37 C.F.R. § 1.53(d), or more than three months after the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in an international application, and after the mailing date of any of a Final Action under 37 C.F.R. § 1.113, a Notice of Allowance under 37

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Page 00498

C.F.R. § 1.311, or an action that otherwise closes prosecution in the application, but on or before payment of the Issue Fee. 37 C.F.R. § 1.97(d).

I hereby certify that each item of information contained in this Further Supplemental Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Further Supplemental Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

The $90.00 fee [37 C.F.R. § 1.17(p)] is being paid with the Supplemental Information Disclosure Statement filed under even date herewith.

The document was cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided.

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP

By /Ngai B. Zhang/
Ngai B. Zhang
Registration No.: 65,473

Customer No.
00909

P. O. Box 10500
McLean, Virginia 22102
Telephone: (703) 770-7900
Telefax: (703) 770-7901

Dated: August 26, 2014

INFORMATION DISCLOSURE CITATION IN AN APPLICATION	Docket Number	Application Number
	090611-0422643	13/898,045
	Inventor(s)	
	Chris WEIDER *et al.*	
	Filing Date	Group Art Unit
Form PTO-1449	May 20, 2013	2658

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
/E.Y./	A	2004/0122674	06/24/2004	Bangalore *et al.*	704	276	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED
/E. Yen/	08/28/2014

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/898,045	05/20/2013	Chris Weider	090611-0422643	6157

909 7590 09/03/2014

Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

EXAMINER	
YEN, ERIC L	

ART UNIT	PAPER NUMBER
2658	

NOTIFICATION DATE	DELIVERY MODE
09/03/2014	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket_ip@pillsburylaw.com
heather.marthers@pillsburylaw.com

Notice of Allowability	Application No. 13/898,045	Applicant(s) WEIDER ET AL.	
	Examiner ERIC YEN	Art Unit 2658	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *IDS filed 8/26/14*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *50-62 and 64-77*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☐ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/ERIC YEN/
Primary Examiner, Art Unit 2658

FILED WITH THE SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

INFORMATION DISCLOSURE CITATION IN AN APPLICATION

Form PTO-1449

Docket Number	Application Number
090611-0422643	13/898,045
Inventor(s)	
Chris WEIDER *et al.*	
Filing Date	Group Art Unit
May 20, 2013	2658

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
/E.Y./	A	8,738,380	05/27/2014	Baldwin *et al.*	704	257	
/E.Y./	B	2008/0154604	06/26/2008	Sathish *et al.*	704	257	
/E.Y./	C	2014/0156278	06/05/2014	Kennewick *et al.*	704	254	

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	REF	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translations YES	Translations NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED
/E. Yen/	08/28/2014

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

Google Exhibit 1012
Page 00503

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/898,045	09/30/2014	8849652	090611-0422643	6157

909 7590 09/10/2014

Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Chris Weider, Everett, WA;
VoiceBox Technologies Corporation, Bellevue, WA, Assignee (with 37 CFR 1.172 Interest);
Richard Kennewick, Woodinville, WA;
Mike Kennewick, Bellevue, WA;
Robert A. Kennewick, Seattle, WA;
Philippe Di Cristo, Bellevue, WA;
Samuel Menaker, Bellevue, WA;
Lynn Elise Armstrong, Woodinville, WA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

PATENT
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Current Date: March 23th, 2018

Application No.: 13/898045
Filed: 20.05.2013

Patent No.: 8849652
Issued: 30.09.2014

CHANGE OF ENTITY STATUS PURSUANT TO 37 C. F. R. § 1.27 (g)(2)

Commissioner for Patents
Mail Stop M Correspondence
P.O. Box 1450
Alexandria, VA 22313-1450

By Fax: 001-571-273-6500

Sir:

This communication hereby notifies the United States Patent and Trademark Office that **small entity status is no longer applicable** for the above-identified patent.

Respectfully submitted,

Signature
Printed Name: Scott Ouellette
TITLE: Senior IP Director



Intellectual Property
Associates Network GmbH

Münchener Str. 14
D-85540 München/Haar

Tel +49 89 943 850 4 -0
Fax +49 89 943 850 4 -11

fax message

To : **USPTO**

Maintenance Fee Branch

Office of Finance

001-571-273-6500

From : IPAN GmbH

Pages : 1 + 1

Date : 03.02.2017

Attached: Petition pursuant § 1.27 (g)(2)

Geschäftsführer Anton Bory
HRB 152740

Kreissparkasse München
BLZ/Sort Code 70250150
KTO/Account No. 10506442
IBAN DE09702501500010506442
SWIFT/BIC BYLADEM1KMS

PAGE 1/2 * RCVD AT 3/29/2018 4:07:17 AM [Eastern Daylight Time] * SVR:W-PTOFAX-003/0 * DNIS:2736500 * CSID:+49 89 943850411 * DURATION (mm-ss):00-35

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT6700444

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
NUANCE COMMUNICATIONS, INC.	01/01/2021

RECEIVING PARTY DATA

Name:	VOICE INVENTIONS, LLC
Street Address:	2 EXECUTIVE DRIVE
Internal Address:	STE. 270
City:	FORT LEE
State/Country:	NEW JERSEY
Postal Code:	07024

PROPERTY NUMBERS Total: 29

Property Type	Number
Patent Number:	7398209
Patent Number:	7502738
Patent Number:	7809570
Patent Number:	8015006
Patent Number:	8112275
Patent Number:	8140327
Patent Number:	8155962
Patent Number:	8731929
Patent Number:	9734825
Patent Number:	7693720
Patent Number:	9031845
Patent Number:	7640160
Patent Number:	7917367
Patent Number:	8326634
Patent Number:	8849670
Patent Number:	9263039
Patent Number:	7620549
Patent Number:	8332224
Patent Number:	8620659

Property Type	Number
Patent Number:	9626959
Patent Number:	7949529
Patent Number:	8195468
Patent Number:	8447607
Patent Number:	8849652
Patent Number:	9495957
Patent Number:	7634409
Patent Number:	7983917
Patent Number:	8069046
Patent Number:	8150694

CORRESPONDENCE DATA

Fax Number:

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Email: eddie.weiss@voiceinventions.com
Correspondent Name: EDWARD WEISS
Address Line 1: 2 EXECUTIVE DRIVE
Address Line 2: STE. 270
Address Line 4: FORT LEE, NEW JERSEY 07024

NAME OF SUBMITTER:	EDWARD WEISS
SIGNATURE:	/Edward Weiss/
DATE SIGNED:	05/10/2021
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 4
source=2020-12-24 - Assignment Nuance to Voice Inventions#page1.tif
source=2020-12-24 - Assignment Nuance to Voice Inventions#page2.tif
source=2020-12-24 - Assignment Nuance to Voice Inventions#page3.tif
source=2020-12-24 - Assignment Nuance to Voice Inventions#page4.tif

PATENT ASSIGNMENT AGREEMENT

This PATENT ASSIGNMENT AGREEMENT (the "Assignment Agreement") between Nuance Communications, Inc., a Delaware corporation, with an address at One Wayside Road, Burlington, MA 01803 ("Assignor"), and Voice Inventions, LLC, a Texas Limited Liability Company, with an address at 2 Executive Drive, Suite 270, Fort Lee, NJ 07024 ("Assignee").

RECITALS

WHEREAS the parties have entered into a certain Patent Purchase and Licensing Agreement (the "Purchase Agreement"), with an effective date of January 1, 2021;

WHEREAS Assignor possesses all legal rights, title, and interests in and to the patents listed in Exhibit A (the "Assigned Patent Portfolio") to this Assignment Agreement;

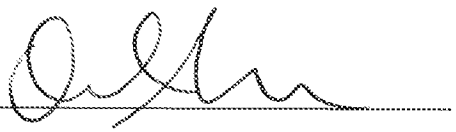
WHEREAS the parties desire to effectuate the assignment and transfer of the Assigned Patent Portfolio to Assignee such that Assignee shall acquire, and thus hereby acquires, all of Assignor's worldwide rights, title, and interests in and to the Assigned Patent Portfolio; and

WHEREAS the parties further desire that the assignment of the Assigned Patent Portfolio be undertaken in a such a manner as to allow Assignee to make such assignment a matter of record in the appropriate domestic and international patent offices;

NOW THEREFORE, for good and valuable consideration, the receipt of which by Assignor is hereby acknowledged, Assignor hereby sells, assigns, and transfers to Assignee, and Assignee hereby purchases and accepts from Assignor, all of Assignor's worldwide rights, title and interest, in and to the Assigned Patent Portfolio, including any and all of Assignor's rights to sue for past damages, subject to the terms and conditions of the Purchase Agreement.

IN WITNESS WHEREOF, intending to be legally bound, Assignor has caused this Assignment Agreement to by executed by its duly authorized representative and made effective, as of January 1, 2021.

Nuance Communications, Inc.
Assignor

By 

Name: David Greenbaum
Title: VP, Litigation & IP

Exhibit A

Assigned Patent Portfolio

	COUNTRY	TITLE	APPLICATION NUMBER	DATE FILED	PATENT NUMBER
1	US	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	10/452,147	Jun 3, 2003	7,398,209
2	US	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	11/747,547	May 11, 2007	7,502,738
3	US	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	12/168,554	Jul 7, 2008	7,809,570
4	US	SYSTEMS AND METHODS FOR PROCESSING NATURAL LANGUAGE SPEECH UTTERANCES WITH CONTEXT-SPECIFIC DOMAIN AGENTS	12/130,397	May 30, 2008	8,015,006
5	US	SYSTEM AND METHOD FOR USER-SPECIFIC SPEECH RECOGNITION	12/765,733	Apr 22, 2010	8,112,275
6	US	SYSTEM AND METHOD FOR FILTERING AND ELIMINATING NOISE FROM NATURAL LANGUAGE UTTERANCES TO IMPROVE SPEECH RECOGNITION AND PARSING	12/765,753	Apr 22, 2010	8,140,327
7	US	METHOD AND SYSTEM FOR ASYNCHRONOUSLY PROCESSING NATURAL LANGUAGE UTTERANCES	12/838,982	Jul 19, 2010	8,155,962
8	US	AGENT ARCHITECTURE FOR DETERMINING MEANINGS OF NATURAL LANGUAGE UTTERANCES	12/365,516	Feb 4, 2009	8,731,929
9	US	SYSTEM AND METHOD FOR PROCESSING NATURAL LANGUAGE UTTERANCES	14/278,627	May 15, 2014	9,734,825
10	US	MOBILE SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCES	10/618,633	Jul 15, 2003	7,693,720
11	US	MOBILE SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	12/705,311	Feb 12, 2010	9,031,845

Google Exhibit 1012
Page 00510

12	US	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	11/197,504	Aug 5, 2005	7,640,160
13	US	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	12/617,506	Nov 12, 2009	7,917,367
14	US	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	13/019,834	Feb 2, 2011	8,326,634
15	US	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	13/690,895	Nov 30, 2012	8,849,670
16	US	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	14/500,723	Sep 29, 2014	9,263,039

17	US	SYSTEM AND METHOD OF SUPPORTING ADAPTIVE MISRECOGNITION IN CONVERSATIONAL SPEECH	11/200,164	Aug 10, 2005	7,620,549
18	US	SYSTEM AND METHOD OF SUPPORTING ADAPTIVE MISRECOGNITION IN CONVERSATIONAL SPEECH	12/571,795	Oct 1, 2009	8,332,224
19	US	SYSTEM AND METHOD OF SUPPORTING ADAPTIVE MISRECOGNITION IN CONVERSATIONAL SPEECH	13/022,370	Feb 7, 2011	8,620,659
20	US	SYSTEM AND METHOD OF SUPPORTING ADAPTIVE MISRECOGNITION IN CONVERSATIONAL SPEECH	14/143,903	Dec 30, 2013	9,626,959

21	US	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	11/212,693	Aug 29, 2005	7,949,529
22	US	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	13/084,197	Apr 11, 2011	8,195,468
23	US	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	13/488,299	Jun 4, 2012	8,447,607
24	US	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	13/898,045	May 20, 2013	8,849,652

25	US	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	14/467,641	Aug 25, 2014	9,495,957

26	US	DYNAMIC SPEECH SHARPENING	11/513,269	Aug 31, 2006	7,634,409
27	US	DYNAMIC SPEECH SHARPENING	12/608,544	Oct 29, 2009	7,983,917
28	US	DYNAMIC SPEECH SHARPENING	12/608,572	Oct 29, 2009	8,069,046
29	US	SYSTEM AND METHOD FOR PROVIDING AN ACOUSTIC GRAMMAR TO DYNAMICALLY SHARPEN SPEECH INTERPRETATION	13/150,977	Jun 1, 2011	8,150,694

30	CN	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	2006800362006	Aug 4, 2006	ZL200680036200.6
31	CN	SYSTEMS AND METHODS FOR RESPONDING TO NATURAL LANGUAGE SPEECH UTTERANCE	2015102059396	Aug 4, 2006	ZL201510205939.6
32	CN	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS	200680038560	Aug 29, 2006	200680038560

PTO/AIA/81A (02-15)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT - POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Patent Number	8849652
Issue Date	09/30/14
First Named Inventor	Weider, Chris
Title	Mobile systems and methods of supporting natural language
Attorney Docket No.	9032-0024

I hereby revoke all previous powers of attorney given in the above-identified patent.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the Customer Number identified in the box at right as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith: 174889

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified patent to:

☒ The address associated with the above-identified Customer Number.

OR

☐ The address associated with the Customer Number identified in the box at right:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the:

☐ Applicant.

OR

☒ Patent owner.

Statement under 37 CFR 3.73(c) (Form PTO/AIA/96) submitted herewith or filed on _____.

SIGNATURE of Applicant or Patent Owner

Signature	/Jeff Ronaldi/	Date	02/27/2023
Name	Jeff Ronaldi	Telephone	(571) 334-1112
Title and Company	Manager, Dialect, LLC		

NOTE: Signatures of all the applicants or patent owners of the entire interest or their representative(s) are required. If more than one signature is required, submit multiple forms, check the box below, and identify the total number of forms submitted in the blank below.

☐ A total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/AIA/96 (08-12)
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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Dialect, LLC

Application No./Patent No.: 8849652 Filed/Issue Date: 09/30/14

Titled: Mobile systems and methods of supporting natural language human-machine interactions

Dialect, LLC, a limited liability company

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Weider, Chris et al. To: VoiceBox Technologies, Inc.

   The document was recorded in the United States Patent and Trademark Office at Reel 031329, Frame 0748, or for which a copy thereof is attached.

2. From: VoiceBox Technologies, Inc. To: VoiceBox Technologies Corporation

   The document was recorded in the United States Patent and Trademark Office at Reel 032621, Frame 0087, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/96 (08-12)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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STATEMENT UNDER 37 CFR 3.73(c)

3. From: VoiceBox Technologies Corporation To: Nuance Communications, Inc.

The document was recorded in the United States Patent and Trademark Office at
Reel 034703, Frame 0429, or for which a copy thereof is attached.

4. From: Nuance Communications, Inc. To: Voice Inventions, LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 056185, Frame 0742, or for which a copy thereof is attached.

5. From: Voice Inventions, LLC To: Dialect, LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 060820, Frame 0857, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Jeff Ronaldi/	02/27/2023
Signature	Date
Jeff Ronaldi	Manager, Dialect, LLC
Printed or Typed Name	Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	47604215
Application Number:	13898045
International Application Number:	
Confirmation Number:	6157
Title of Invention:	MOBILE SYSTEMS AND METHODS OF SUPPORTING NATURAL LANGUAGE HUMAN-MACHINE INTERACTIONS
First Named Inventor/Applicant Name:	Chris Weider
Customer Number:	909
Filer:	David Alexander Gerasimow
Filer Authorized By:	
Attorney Docket Number:	090611-0422643
Receipt Date:	28-FEB-2023
Filing Date:	20-MAY-2013
Time Stamp:	13:59:11
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	8849652.pdf	206840 5845862a0d7d7639396bcd0664cd2c21c568d2f1	no	2

Warnings:

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	8849652-aia0096.pdf	202142 7d4241aff3cad4ebbe6d0e858aba60376ef4de78	no	3
Warnings:					
Information:					
		Total Files Size (in bytes):	408982		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/898,045	05/20/2013	Chris Weider	090611-0422643

CONFIRMATION NO. 6157

IMPROPER CPOA LETTER

909
Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

OC000000137523256

Date Mailed: 03/07/2023

NOTICE REGARDING POWER OF ATTORNEY

This is in response to the power of attorney filed 02/28/2023. The power of attorney in this application is not accepted for the reason(s) listed below:

- The person(s) appointed in the power of attorney is/are not registered to practice before the U.S. Patent and Trademark Office.

/sltorres/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

174889
Carbon Research, Inc (aka Research Carbon, Inc)
43 Luke St
Prospect, CT 06712
UNITED STATES

Google Exhibit 1012
Page 00520

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 **Director of the U.S. Patent and Trademark Office** **P.O. Box 1450** **Alexandria, VA 22313-1450**	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court for the District of Delaware on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
	4/3/2023	for the District of Delaware

PLAINTIFF	DEFENDANT
Dialect, LLC	Google LLC and Alphabet Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	See Attached		
2			
3			
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1			
2			
3			
4			
5			

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	US 7,398,209 B2	7/8/2008	Dialect, LLC
2	US 7,502,738 B2	3/10/2009	Dialect, LLC
3	US 7,640,160 B2	12/29/2009	Dialect, LLC
4	US 7,693,720 B2	4/6/2010	Dialect, LLC
5	US 8,015,006 B2	9/6/2011	Dialect, LLC
6	US 8,447,607 B2	5/21/2013	Dialect, LLC
7	US 8,849,652 B2	9/30/2014	Dialect, LLC
8	US 9,031,845 B2	5/12/2015	Dialect, LLC

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court District of Delaware on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
	4/3/2023	District of Delaware

PLAINTIFF	DEFENDANT
Cedar Lane Technologies Inc.	Best Lighting Products Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	7,391,159	6/24/2008	Cedar Lane Technologies Inc.
2			Cedar Lane Technologies Inc.
3			Cedar Lane Technologies Inc.
4			Cedar Lane Technologies Inc.
5			Cedar Lane Technologies Inc.

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court District of Delaware on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
	4/3/2023	District of Delaware

PLAINTIFF	DEFENDANT
Cedar Lane Technologies Inc.	Hubbell Incorporated

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	7,391,159	6/24/2008	Cedar Lane Technologies Inc.
2			Cedar Lane Technologies Inc.
3			Cedar Lane Technologies Inc.
4			Cedar Lane Technologies Inc.
5			Cedar Lane Technologies Inc.

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy